

PCM-F1

US Model
Canadian Model
AEP Model
UK Model



DIGITAL AUDIO PROCESSOR

SPECIFICATIONS

Signal system	Conforms to EIA television standard, NTSC color (NTSC system) or Conforms to CCIR television standard, PAL/SECAM color (PAL/SECAM system)
Code format	Conforms to the technical specifications of the EIAJ (standard format using 14-bit quantization), or 16-bit quantization format
Number of audio channels	2 channels
Sampling frequency	44,056 Hz (NTSC system) or 44,100 Hz (PAL/SECAM system)
Quantization	14-bit linear quantizing, or 16-bit linear quantizing
Frequency response	10-20,000 Hz ± 0.5 dB
Harmonic distortion	Less than 0.007% (14-bit format) Less than 0.005% (16-bit format)
Dynamic range	More than 86 dB (14-bit format) More than 90 dB (16-bit format)
Channel separation	More than 80 dB
Wow and flutter	Below measurable limit
Error correction	Error correction and concealment using CRCC and parity
Emphasis	Pre-emphasis (in recording): fixed at ON De-emphasis (in playback): automatically switched to ON or OFF (by detecting pre-emphasis identification code) Time-constant: 50 μ sec, 15 μ sec

— Continued on page 2 —



SONY
®
SERVICE MANUAL

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

PCM-F1

Inputs

	Type	Reference input level	Impedance	Minimum input level
MIC	Phone	—	Accepts low impedance microphones.	0.435 mV (-65 dB)
LINE IN	Phono	-10 dB*	40 kilohms	95 mV (-18 dB)
VIDEO IN	Phono	1 Vp-p	75 ohms	—

Outputs

	Type	Reference output level	Load impedance
LINE OUT	Phono	-10 dB**	More than 10 kilohms
VIDEO OUT	Phono	1 Vp-p	75 ohms
COPY OUT	Phono	1 Vp-p	75 ohms
HEADPHONES	Stereo phone	-24 to -48 dB Attenuation: 5 steps (24, 18, 12, 6 and 0 dB)	Accepts low impedance headphones.

* Input level when the peak program meters deflect to -15 dB.

** Output level when the playback level is -15 dB as shown by the peak program meters.

General

Power requirements	Operating voltage: 12 V dc Usable power sources: 12 V dc with the Sony NP-1 rechargeable battery pack (optional) US, Canadian model: 120 V ac, 60 Hz with the supplied AC-700 ac power adaptor AEP model: 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50 Hz with the supplied AC-700 ac power adaptor UK model: 240 V ac (or 220 V ac adjustable by authorized Sony personnel), 50 Hz with the supplied AC-700 ac power adaptor US, Canadian model: 12 V car battery with the Sony DCC-2400B car battery cord (optional) AEP, UK model: 12 V car battery with the Sony DCC-2500 car battery cord (optional)
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Power consumption Dimensions

17 watts dc
PCM-F1: Approx. 215 x 80 x 305 mm (w/h/d)
(8 1/2 x 3 1/4 x 12 1/8 inches)
AC-700: Approx. 107 x 80 x 305 mm (w/h/d)
(4 1/4 x 3 1/4 x 12 1/8 inches)
not including projecting parts and controls
PCM-F1: Approx. 4 kg (8 lbs 13 oz) net
AC-700: Approx. 3.2 kg (7 lbs 1 oz) net
Approx. 8.1 kg (17 lbs 14 oz) in shipping carton, including PCM-F1 and AC-700

Weight

Total weight

FEATURES

In conventional analog recording systems, the quality of sound reproduction depends upon the properties of magnetic tape and heads, so that it is virtually impossible to bypass the inherent limitations of conventional analog recording, including its limited dynamic range and frequency response, and its associated distortion.

The Pulse Code Modulation (PCM) system points the way to a new era in sound reproduction. It can offer performance and fidelity far superior to any analog system.

In the PCM system, sound levels are converted to a series of binary codes. This information is recorded as digital pulses of equal amplitude. In playback, all that has to be done is to discriminate between the presence and absence of a pulse. The quality of recording and playback is thus not dependent on the characteristics of tape and heads.

The PCM-F1 is the newest addition to Sony's line of PCM digital audio processors for consumer applications. With the PCM-F1, hi-fi sound reproduction with wide dynamic range, minimal distortion, low wow and flutter (lower than the measurable limit), and flat frequency response is achieved. Listening to the reproduction of your PCM-F1 is just like being in the concert hall.

Compact, lightweight PCM digital audio processor

In conventional digital audio processors, several hundreds of ICs are employed in digital processing circuitry, which makes it difficult to make the unit compact and lightweight.

The three new LSIs for digital processing developed especially for digital audio processor use have successfully made the PCM-F1 compact and lightweight. The A/D (analog-to-digital) and D/A (digital-to-analog) converters, which are newly developed monolithic ICs, are especially adaptable to mass production. This results in the production of a PCM digital audio processor that is more affordable to a greater proportion of audio-philes.

Resolution selector for recording and playback with wider dynamic range and less distortion

The PCM-F1 was developed in accordance with the technical specifications of the Electronic Industries Association of Japan (EIAJ), which has adopted the 14-bit linear quantization format. In addition, the unit has the capability of recording and playing back in accordance with the 16-bit linear quantization format with wider dynamic range and less distortion than the 14-bit format. The 14-bit and 16-bit formats can be selected with the RES (resolution) selector.

Three different power sources

The unit can be operated on three different power sources: house current using the supplied ac power adaptor, optional rechargeable battery pack, and 12 V car battery using an optional car battery cord. When this compact, lightweight PCM-F1 is combined with the Sony SL-2000 or Sony SL-F1 series portable video cassette recorder, you can make a live field recording with wide dynamic range, minimal distortion, and flat frequency response.

Stable power supply

Two dc-to-dc converters incorporated in the unit—one (± 5 V) for the digital circuitry and the other (± 15 V) for the analog circuitry—assure stable power supply.

Easy tracking adjustment of video heads

Correct tracking adjustment of the video heads can be easily performed by observing a meter.

Muting switch for continuous sound reproduction

With the MUTING switch set to OFF, the reproduced sound is not cut off even if many dropouts occur, or if the tape is not being transported at the proper playback speed.

Record muting function allows you to easily insert a blank space between selections.

Multi-generation digital-to-digital tape copy can be performed with absolutely no deterioration in signal quality.

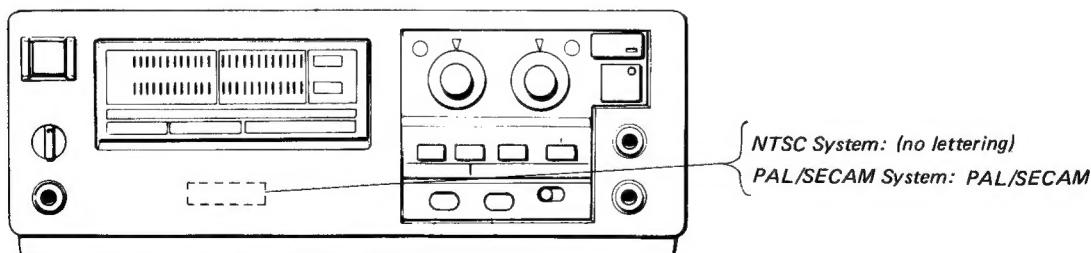
With the highly perfected error detection and correction circuits incorporated, the reproduced sound quality is not affected by dropout errors.

You can choose either of two ways to have the peak level indicated on the LED peak program meters.

Microphone head amplifiers are incorporated for recording directly from microphones and provide excellent sound quality.

SIGNAL SYSTEM IDENTIFICATION

Front panel

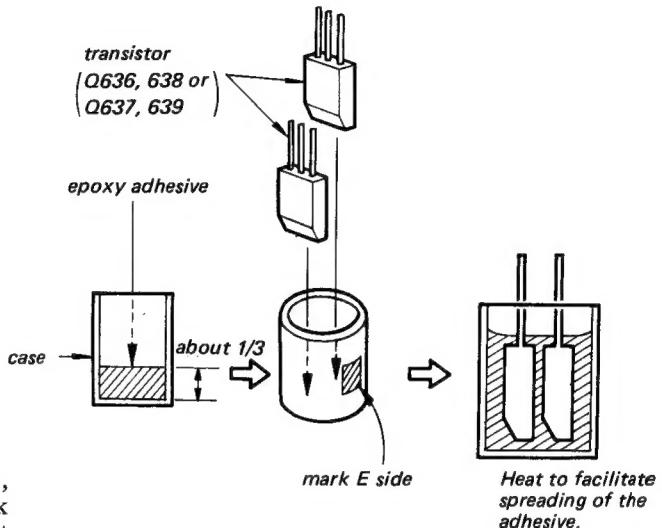
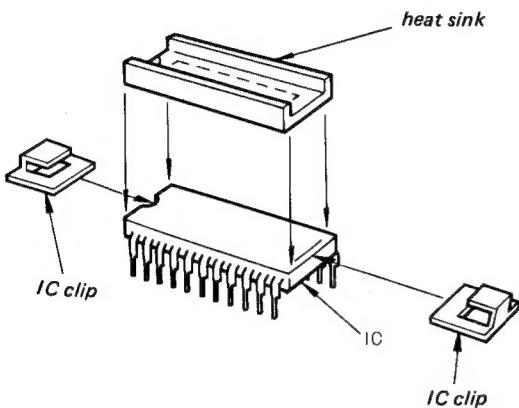


SERVICING NOTE

Notes on IC, Transistor Replacement

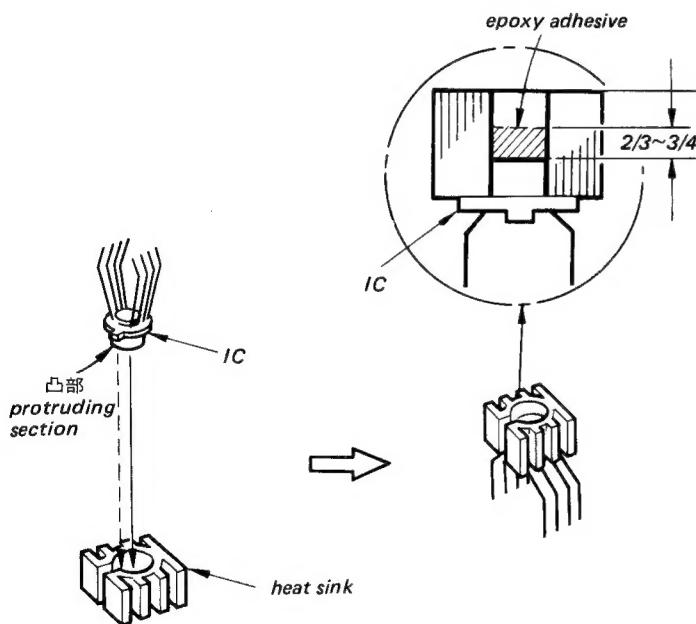
● When replacing IC104, 204, 304, 505, first clean the top of the IC and the bottom of the heat sink with alcohol, then apply an epoxy type adhesive* to the heat sink with IC clip, as shown in the illustration below.

● When replacing Q636, 638, Q637, 639, fill the case as shown in the diagram with an epoxy type adhesive* and insert the transistor.

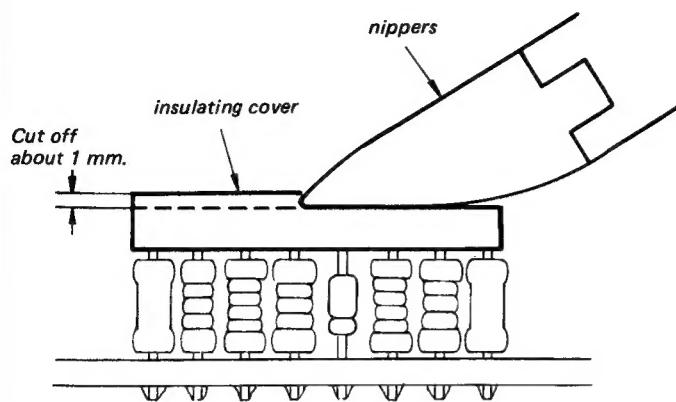


● When replacing IC102, 103, 105, 108, 202, 203, 205, 208, first clean the IC head and the inside of the heat sink with alcohol, then mount the heat sink and fill the heat sink indented portion with an epoxy type adhesive*, as shown in the illustration below.

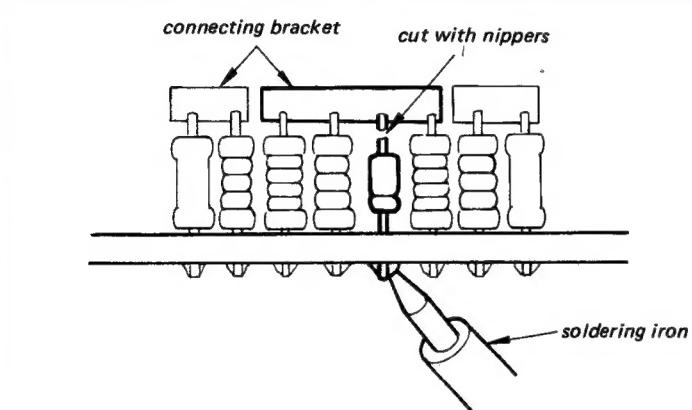
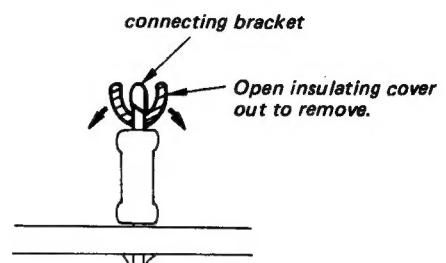
* Epoxy type adhesive: Sony bond SC1000 or other quick drying 2 liquid compound.



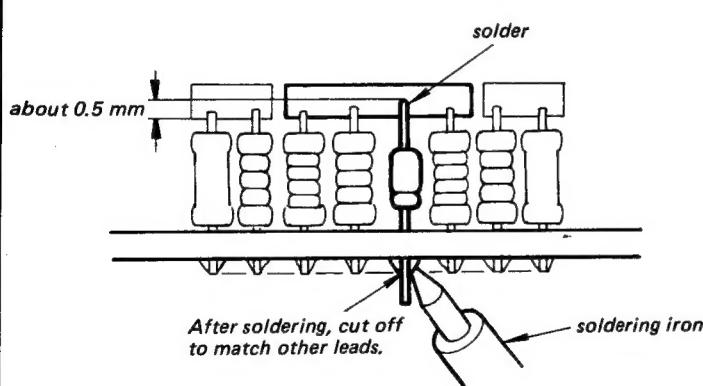
REPAIR METHOD FOR HYBRID CIRCUIT BLOCK



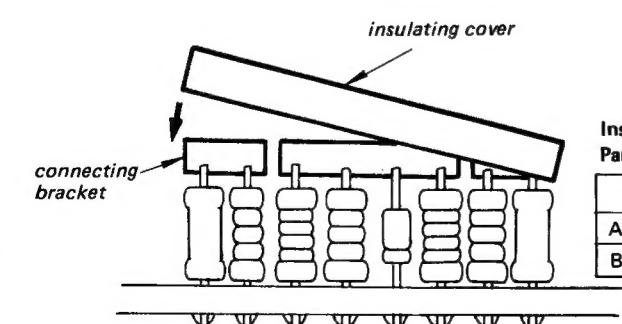
Using nippers, cut off the upper portion of the insulating cover about 1 mm, exposing the top of the connecting brackets.



Cut off the lead of the defective part with nippers. Remove solder and take out the defective part.



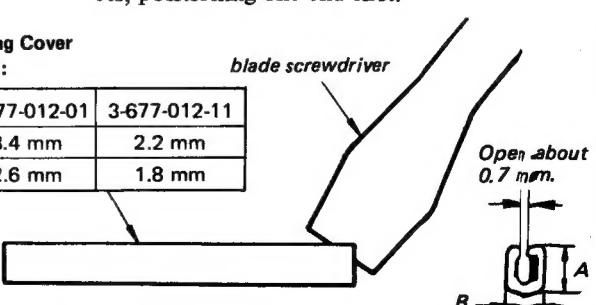
Insert the new part on the board and solder the lead to the board. Cut off the lead on the connecting bracket side so that it overlaps by about 0.5 mm, and solder to the connecting bracket.



Insulating Cover
Part No.:

	3-677-012-01	3-677-012-11
A	3.4 mm	2.2 mm
B	2.6 mm	1.8 mm

Open the insulating cover groove about 0.7 mm and place over the connecting brackets, positioning one end first.

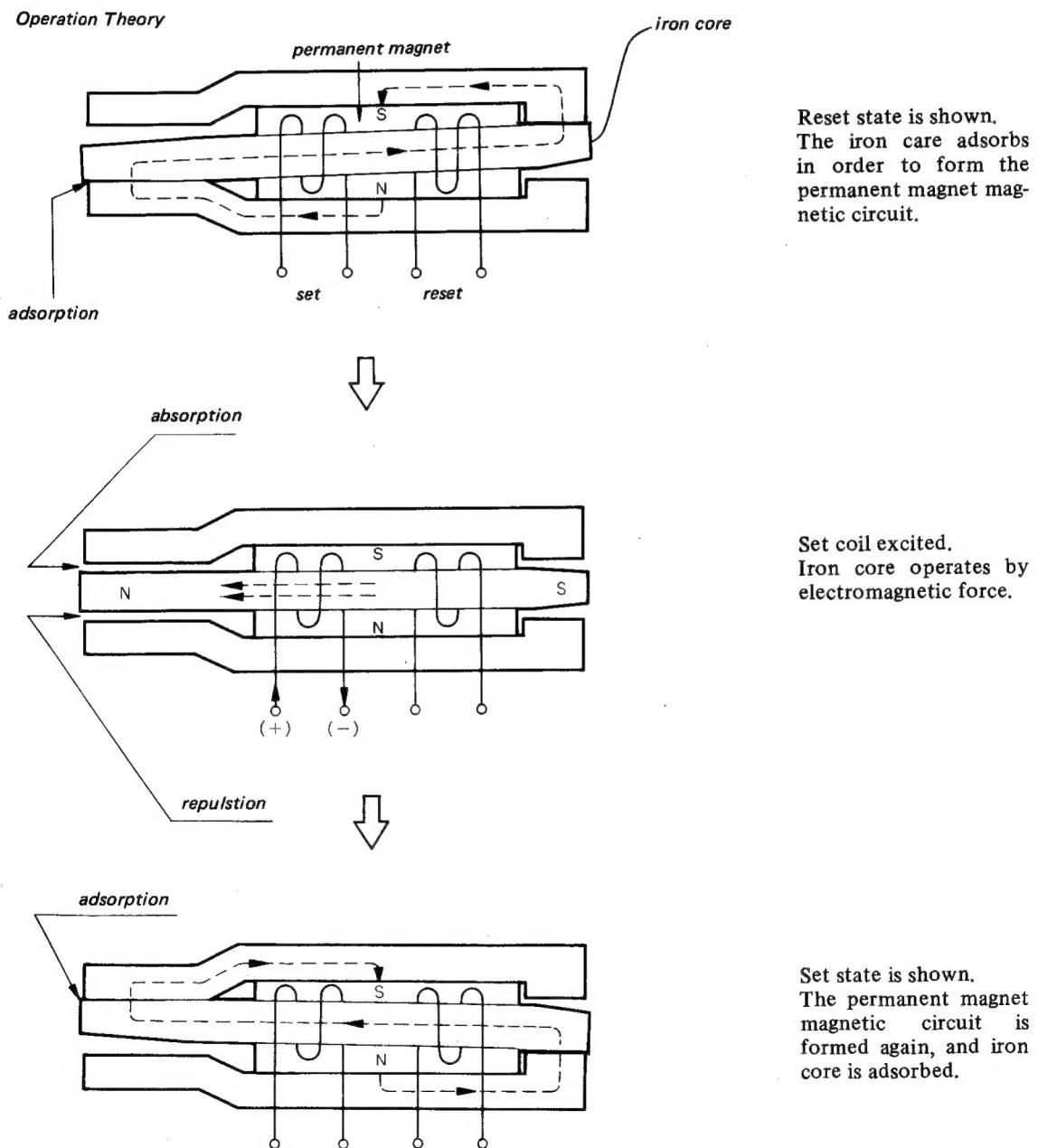


Latching Type Relay

RL301, 601, 602 use a latching type relay. This relay has two exciting coils, set and reset, and a permanent magnet, so by exciting each coil mementarily, set or reset state is maintained.

A normal relay (hinge type) is driven only by the coil magnetomotive force, whereas the latching type relay uses the permanent magnet energy, resulting in low energy consumption and excellent anti-vibration and anti-shock characteristics.

Operation Theory



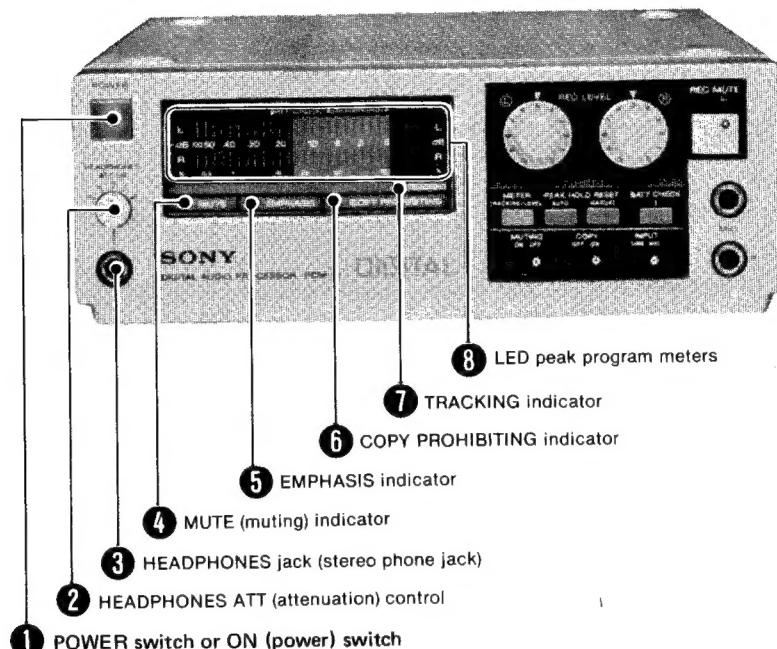
SECTION 1

OUTLINE

LOCATION AND FUNCTION OF CONTROLS

Before plugging in or attempting to operate the unit, we suggest that you familiarize yourself with all its switches and controls. Each number in the photo is keyed to the descriptive text.

FRONT PANEL



① POWER switch or ON (power) switch

Press to turn on the power. The LED peak program meters will illuminate. To turn the power off, press the switch again.

② HEADPHONES ATT (attenuation) control

This control adjusts the volume at the headphones. At the "0" position, the rated output is obtained. When this control is set to the "6" position, the level is reduced by 6 dB, and by setting it to "12", "18" or "24", the level is reduced by that amount of decibels from the rated output obtained at the "0" position.

③ HEADPHONES jack (stereo phone jack)

Headphones may be inserted either to monitor the input signals to be recorded or to listen to a recording in the playback mode.

④ MUTE (muting) indicator

If the video cassette recorder is not transporting tape at the proper playback speed (for example, when the tape first begins to move), or if many dropouts occur, this indicator will light up. When the indicator lights up with the MUTING switch set to ON, the muting circuit will activate.

⑤ EMPHASIS indicator

When recording and playback are made with this unit, the emphasis circuit incorporated in the unit activates during recording (pre-emphasis) and playback (de-emphasis) and the EMPHASIS indicator illuminates.

When a tape recorded without pre-emphasis with a PCM digital audio processor other than this unit is played back with this unit, the EMPHASIS indicator will not illuminate.

⑥ COPY PROHIBITING indicator

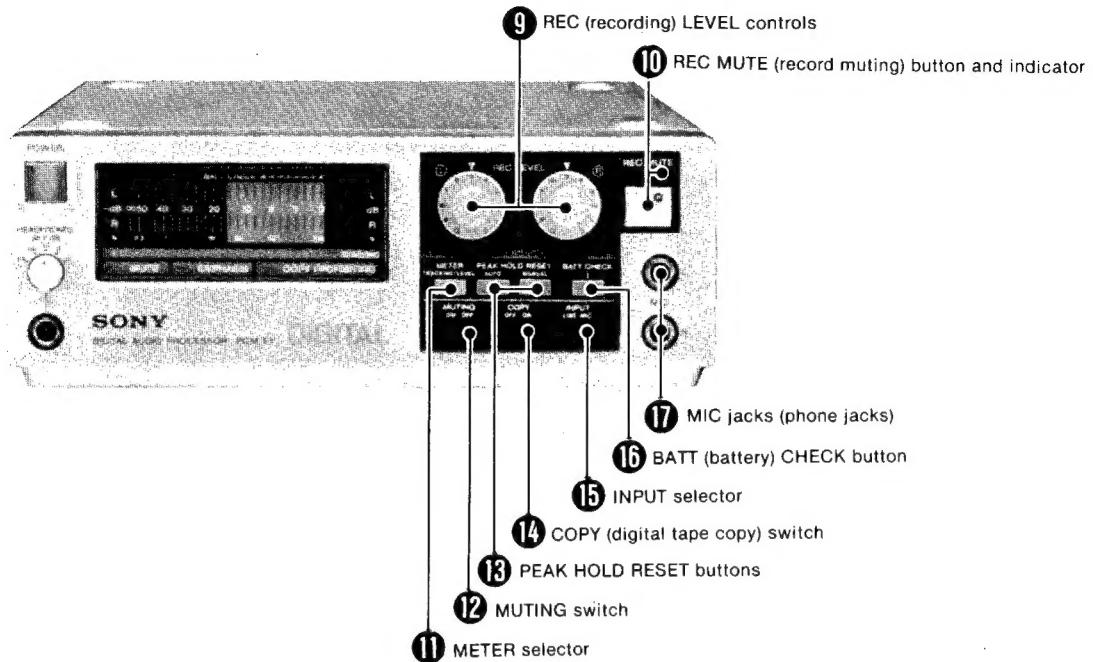
When a tape with a tape copy prohibiting code is played back, this indicator will light up to show that a digital tape copy cannot be made.

⑦ TRACKING indicator

When you press the METER selector, the lower LED peak program meter will be changed to a tracking meter, and the TRACKING indicator will light up.

⑧ LED peak program meters

These meters show the peak input level of each channel during recording, and the recorded level during playback. They follow the transient peaks of high-level inputs that are too brief to be followed by conventional VU meters so that the optimum recording level can be accurately set. For easy reading, the meters hold the highest peak while indicating the varying levels lower than the peak. While the BATT CHECK button is kept depressed, the upper meter for the left (L) channel shows the battery pack condition. When the METER selector is pressed, the lower meter for the right (R) channel shows the tracking condition of the video cassette recorder.



⑨ REC (recording) LEVEL controls

These controls adjust the recording level. The left knob is for the left channel and the right knob for the right channel.

⑩ REC MUTE (record muting) button and indicator

Keep this button depressed to eliminate unwanted material and to insert a blank space during recording. While the button is kept depressed, the REC MUTE indicator will illuminate.

⑪ METER selector

Press to turn the LED peak program meters into a tracking meter. Each time the selector is pressed, the function of the meter will change.

⑫ MUTING switch

Normally set this switch to ON.

If the video cassette recorder is not transporting tape at the proper playback speed, or if many dropouts occur due to the mistracking of the video heads of the video cassette recorder, or due to scratches and dusts on the magnetic tape, the muting circuit will activate and the reproduced sound will be cut off.

If you do not want the reproduced sound to be cut off by the muting circuit, set the switch to OFF.

⑬ PEAK HOLD RESET buttons

You can choose either of two ways to have the peak level indicated: When the AUTO button is pressed, successive peaks are held for about 1.7 seconds, except when a higher peak occurs before 1.7

seconds have passed, in which case that peak is immediately indicated. When the power is first turned on, the AUTO peak indication mode will automatically operate.

When the MANUAL button is pressed, the peak level will be held on the scale until a higher peak occurs, and that peak will be held. To reset the peak held on the meter, just press this button. You will find this method of indicating the peak input useful when you want to know the highest peak of a tape or disc, or when you want to know both the highest peak as well as the intermittent input levels during live recording.

⑭ COPY (digital tape copy) switch

Set this switch to ON for digital-to-digital tape copy, with absolutely no deterioration in signal quality, using a pair of video cassette recorders and the COPY OUT jack at the rear.

Be sure to set this switch to OFF except during digital tape copy.

With this switch set at the ON position, no signal is obtained at the VIDEO OUT jack.

⑮ INPUT selector

LINE: to record through the LINE IN jacks at the rear.

MIC: to record through the MIC jacks.

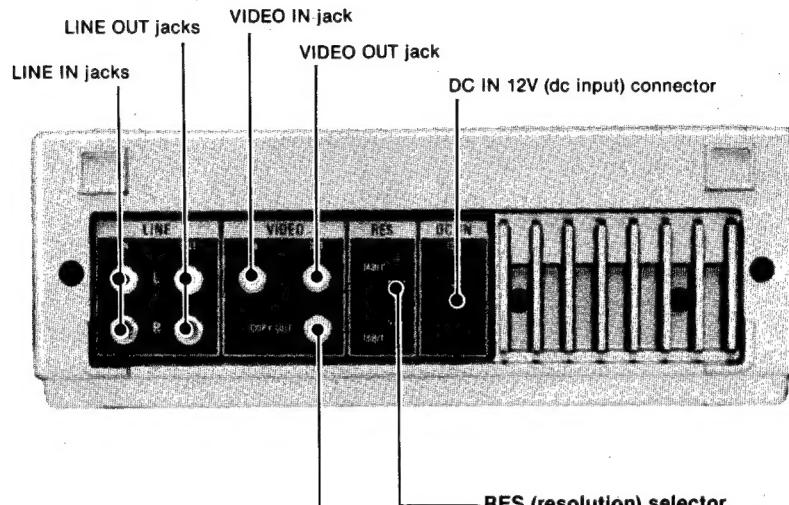
⑯ BATT (battery) CHECK button

While this button is kept depressed, the upper meter shows the battery pack condition.

⑰ MIC jacks (phone jacks)

Any low-impedance microphone equipped with a phone plug may be used. If your microphone is equipped with a mini plug, you will need a plug adaptor.

REAR PANEL

**COPY OUT (tape copy output) jack**

To perform digital-to-digital tape copy, connect this jack with the video input jack of the video cassette recorder for recording so that when the COPY switch is set to ON, playback signals in which errors are corrected and/or concealed are obtained.

Be sure not to use this jack except during digital tape copy. Normal recording and playback cannot be performed using this jack.

RES (resolution) selector

Selects the resolution for recording.

14 BIT: for recording in accordance with the technical specifications of the Electronic Industries Association of Japan (EIAJ) which has adopted the 14-bit linear quantization format. Set the selector to this position when the tape recorded with this unit is to be played back using another PCM digital audio processor which conforms to the 14-bit quantization format of the EIAJ.

16 BIT: for recording and playing back using this unit with a wider dynamic range and less distortion.

Normally set the selector to this position.

During playback, it is not necessary to select the position of this selector, since the 14-bit or 16-bit format used for recording is automatically selected.

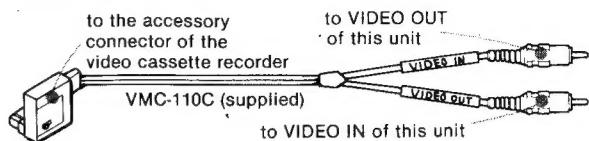
SYSTEM CONNECTIONS

CONNECTION NOTES

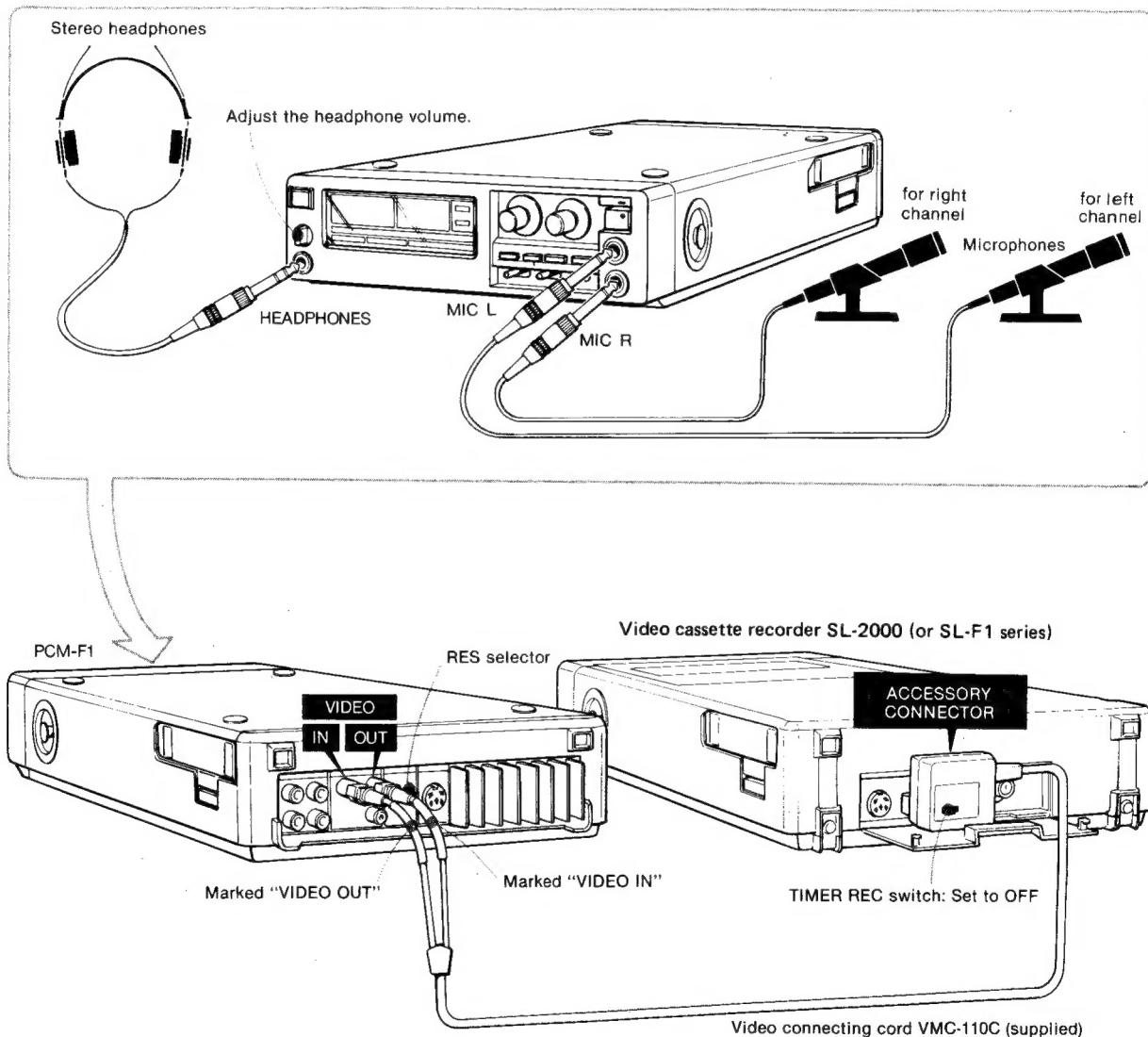
- Turn off the amplifier before making connections.
- The supplied connecting cords with red and white plugs are for audio signals, and those with yellow plugs are for video signals.
- Be sure to connect the red plug of the supplied audio connecting cord to the right-channel [R] jack and the white plug to the left-channel [L] jack.
- To connect the unit with the Sony SL-2000 (or SL-F1 series) video cassette recorder, use the supplied VMC-110C video connecting cord. To connect the unit with a video cassette recorder other than the SL-2000 (or SL-F1 series), use the supplied VMC-1S video con-

necting cords with phono plugs of the VMC-110C are labelled to with a BNC-type plug and phono plug).

The yellow plugs of the VMC-110C are labelled to indicate the signal flow. The plug labelled VIDEO IN should be connected to the VIDEO OUT jack of this unit and the one labelled VIDEO OUT to the VIDEO IN jack.



CONNECTION WITH THE SONY SL-2000 (or SL-F1 SERIES) VIDEO CASSETTE RECORDER (FOR OUTDOOR LIVE RECORDING)

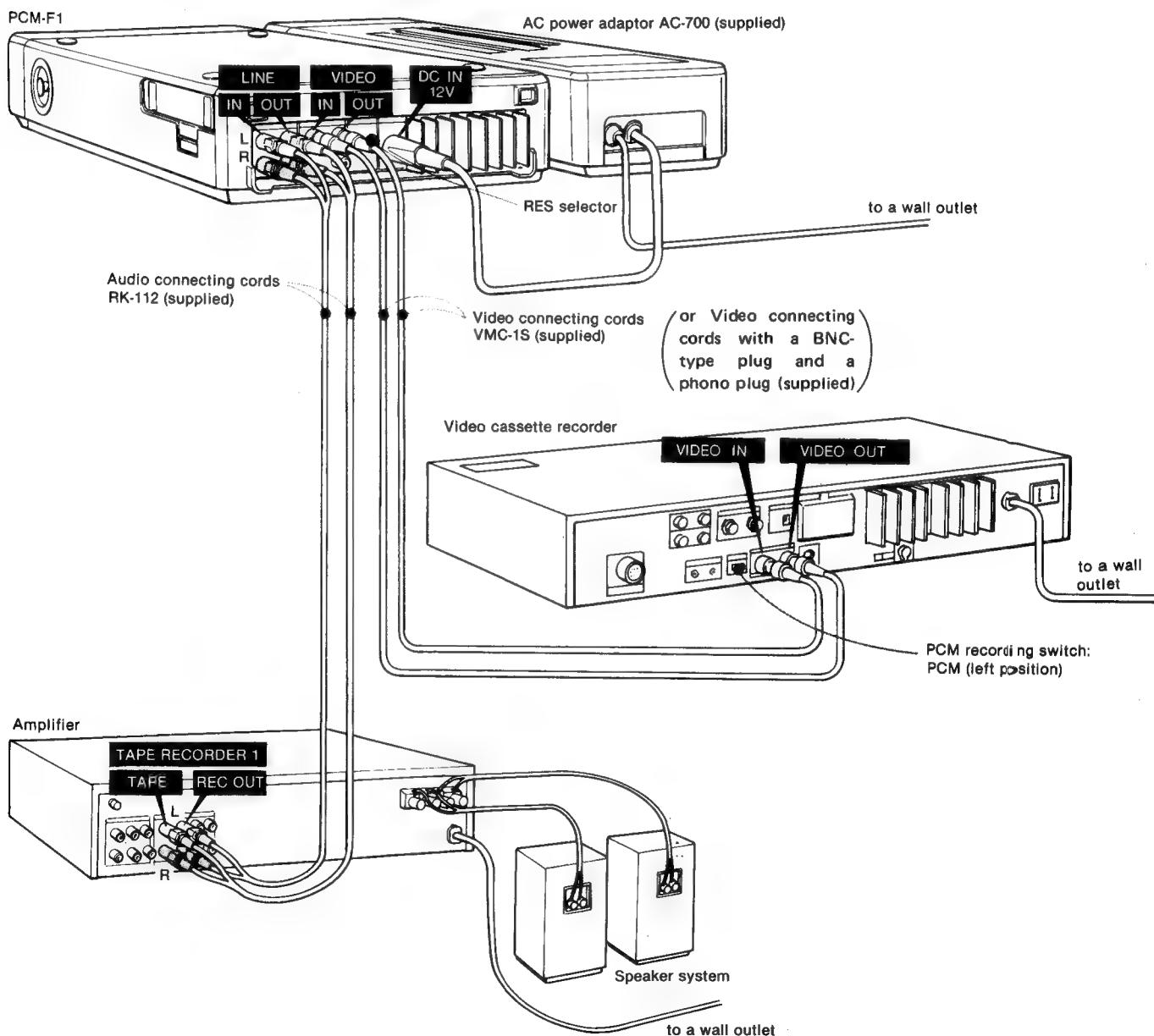


- Be sure to connect both the VIDEO IN and VIDEO OUT jacks to the video cassette recorder. If the VIDEO IN jack of this unit is not connected to the video output of the video cassette recorder, recording is possible but you cannot monitor the recording, and the peak Program meters will not deflect.

- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Keep the connecting cords away from the power cords or speaker cords to avoid hum pick-up, and maintain a moderate separation between the connecting cords and any antenna lead-in to avoid possible noise pick-up. Keep the cables as short as practical.
- We recommend using the Sony SL-2000 (or SL-F1 series) portable video cassette recorder or any other Sony video cassette recorder.

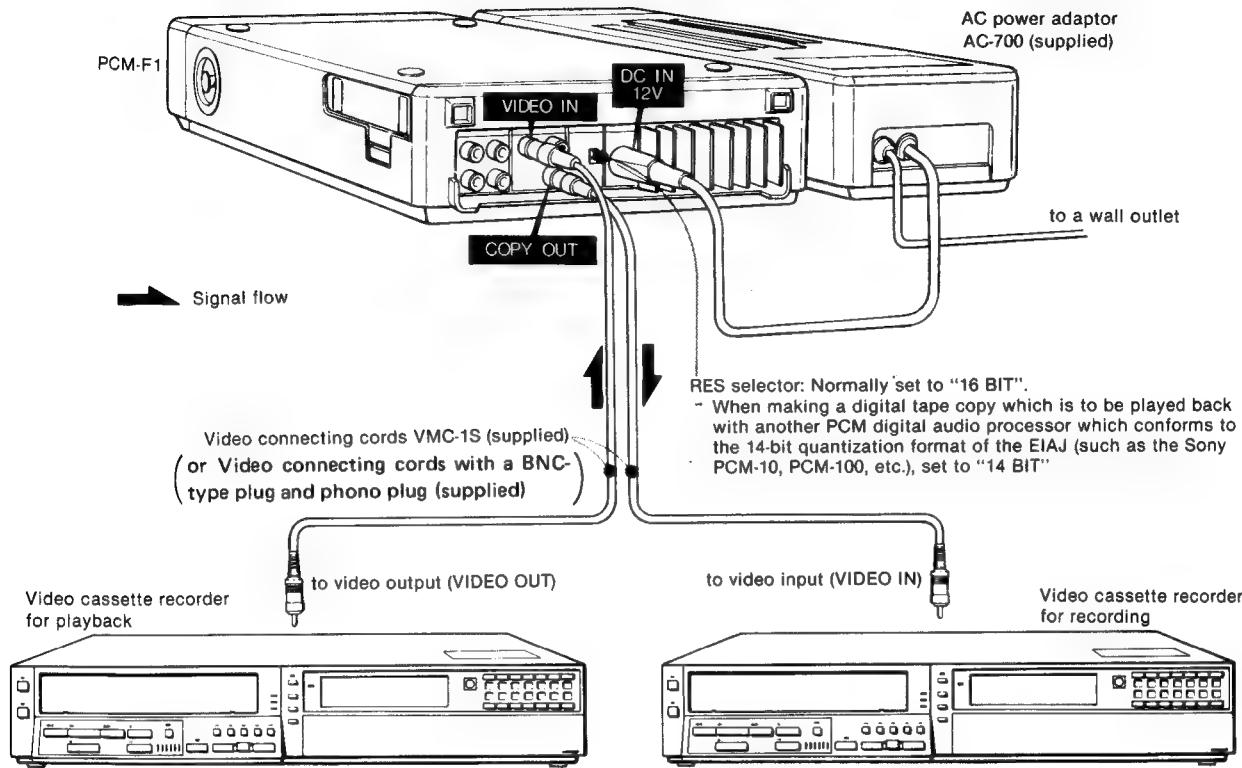
- For detailed information about connections of the video cassette recorder and amplifier, refer to the instruction manual supplied with each unit.

CONNECTION WITH A VIDEO CASSETTE RECORDER OTHER THAN THE SL-2000 (or SL-F1 SERIES)



DIGITAL TAPE COPY

Using the COPY OUT jack of this unit and a pair of video cassette recorders, you can make digital-to-digital tape copy with absolutely no deterioration in signal quality.

CONNECTION**OPERATING PROCEDURE**

- 1 Turn on the unit and video cassette recorders.
- 2 Insert a recorded tape into the video cassette recorder for playback and a blank tape into the video cassette recorder for recording.
- 3 Set the COPY switch of the PCM-F1 to ON.
- 4 Start the playback of the video cassette recorder for playback and the recording of the video cassette recorder for recording. Copying will begin.

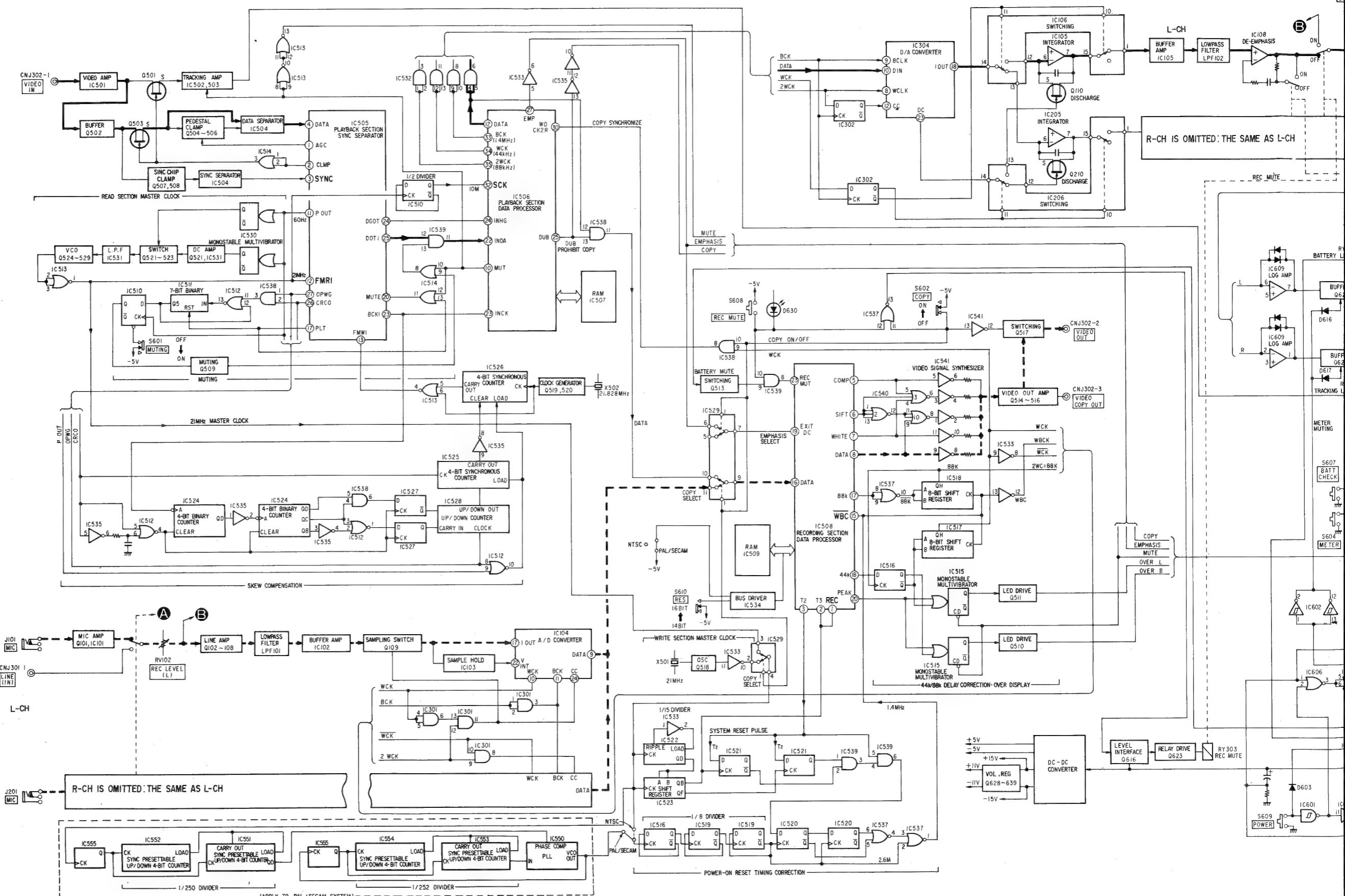
After the tape copy has been completed, be sure to set the COPY switch to OFF.

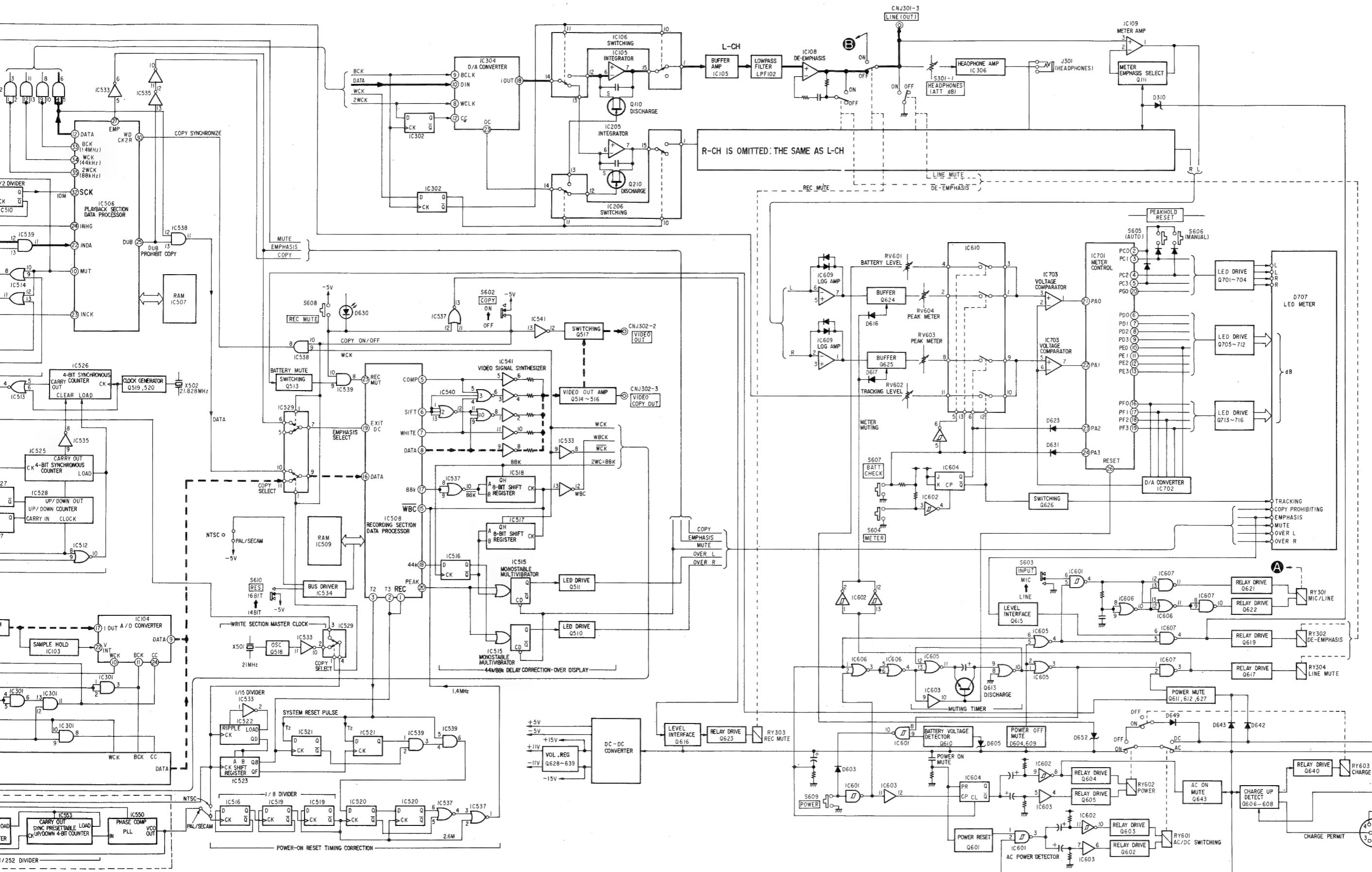
Important points to remember

- The reproduced sound being monitored through the headphones or speakers with the COPY switch set to ON may be somewhat more distorted than when played back and monitored with the switch set to OFF. However, the tape will be copied with no deterioration in signal quality.
- No recording level adjustment is necessary when making a digital-to-digital tape copy.
- A tape on which the tape copy prohibiting code has been recorded cannot be duplicated. When such a tape is played back, the COPY PROHIBITING indicator will light up.
- Be sure to set the COPY switch to ON for digital tape copy. Digital-to-digital tape copy cannot be performed with the COPY switch set to OFF.

Do not move the COPY switch during tape copy or during normal recording and playback.

BLOCK DIAGRAMS

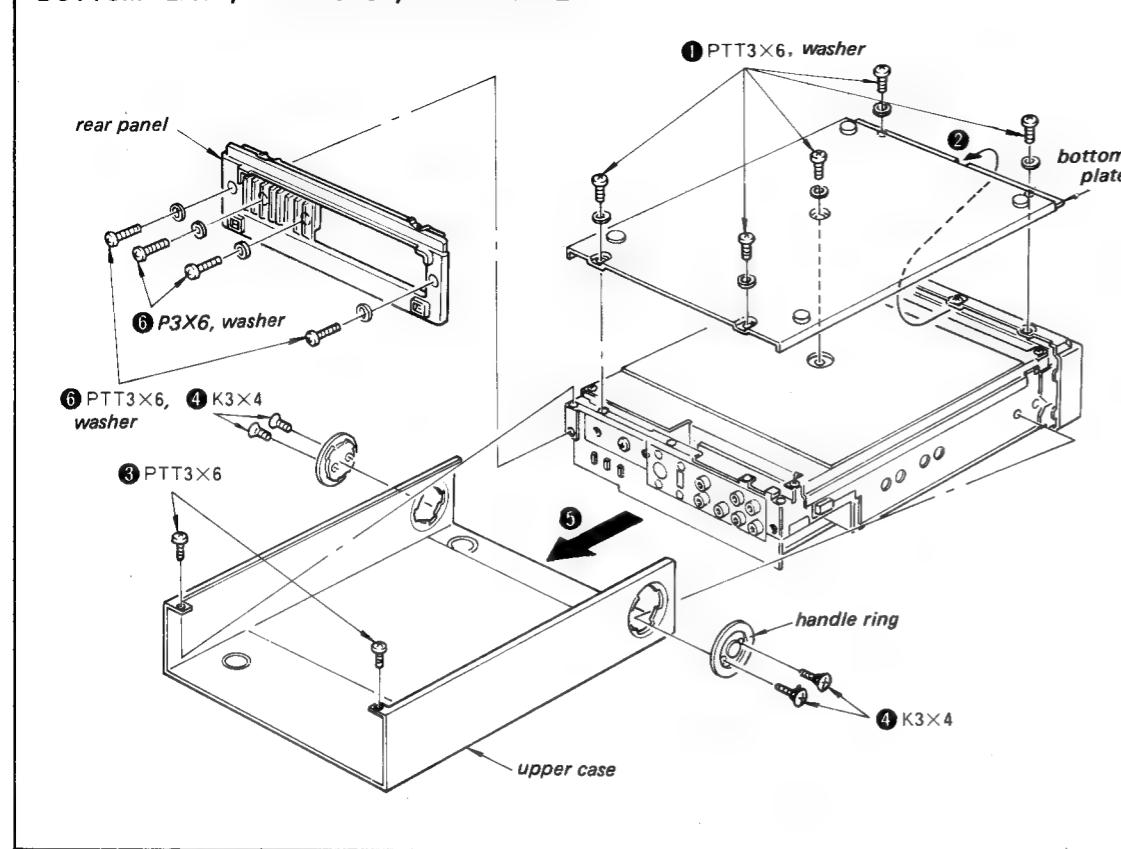




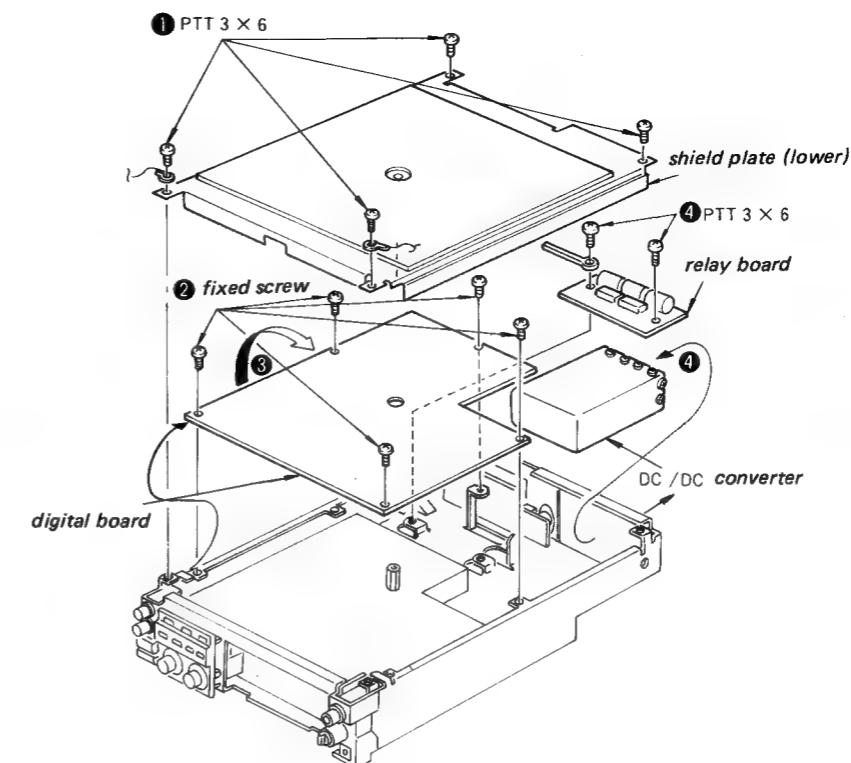
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

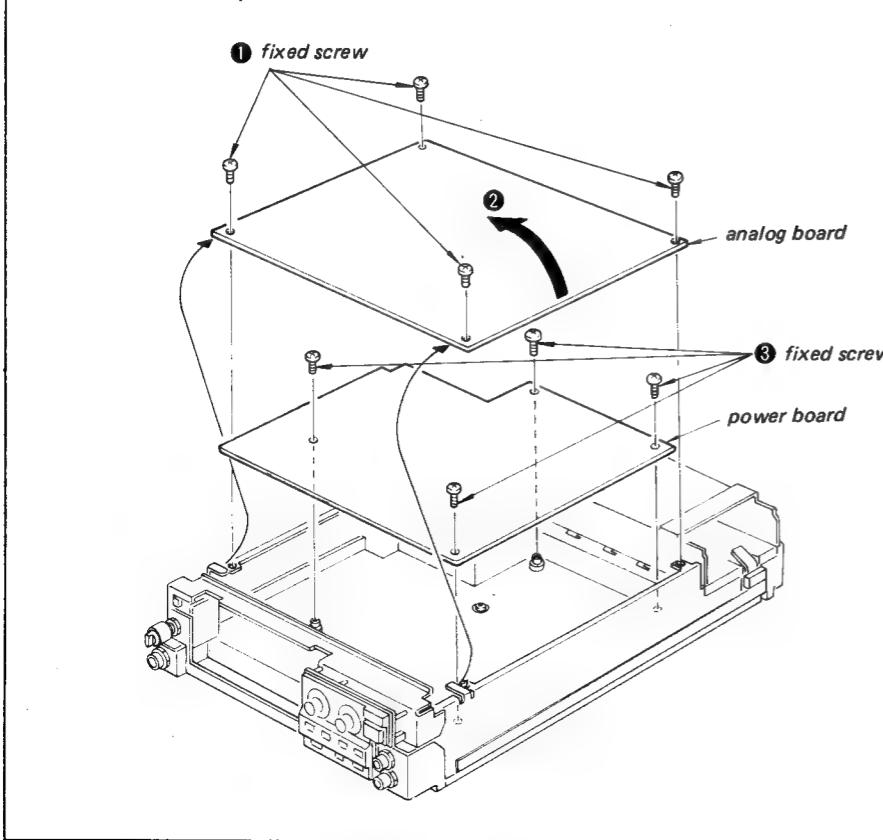
BOTTOM PLATE, UPPER CASE, REAR PANEL



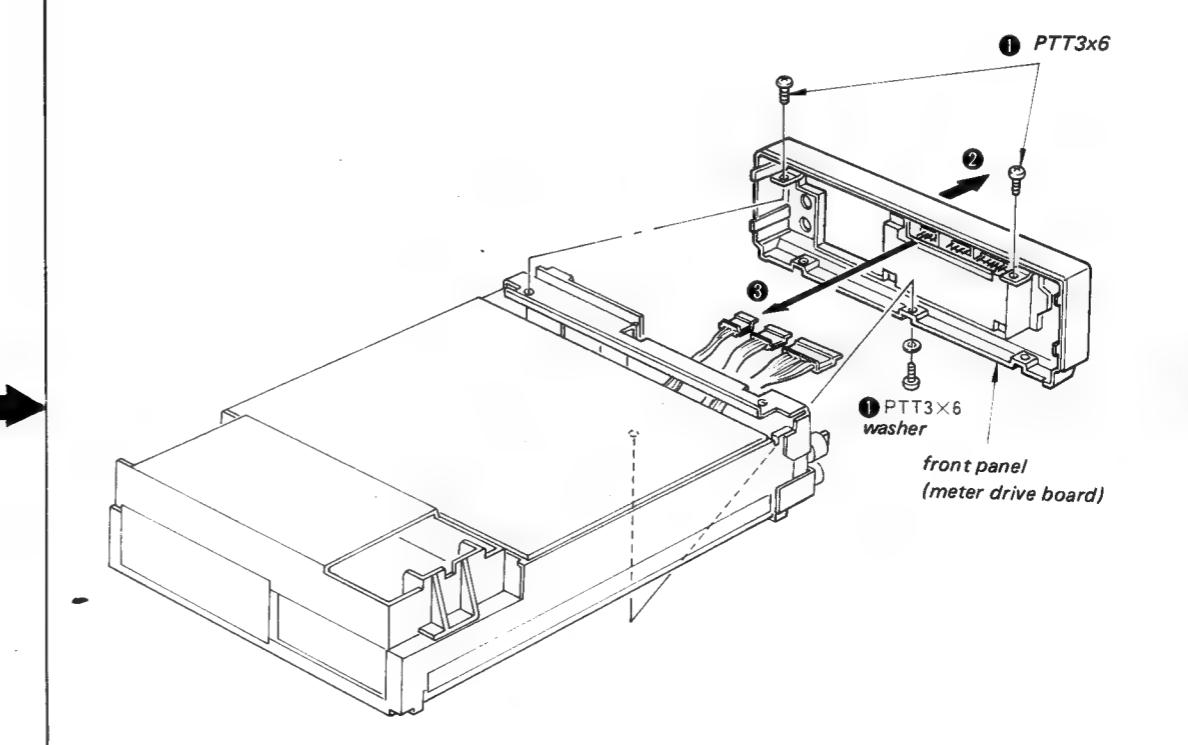
DIGITAL BOARD, RELAY BOARD, DC/DC CONVERTER

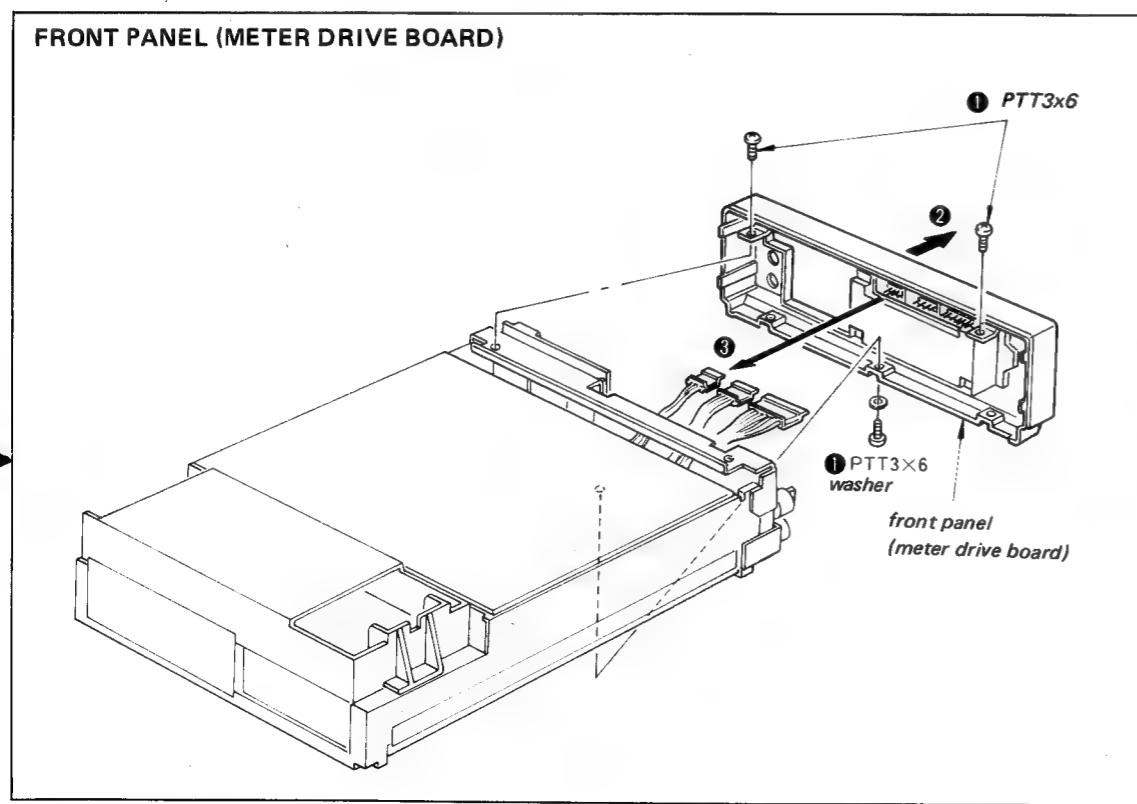
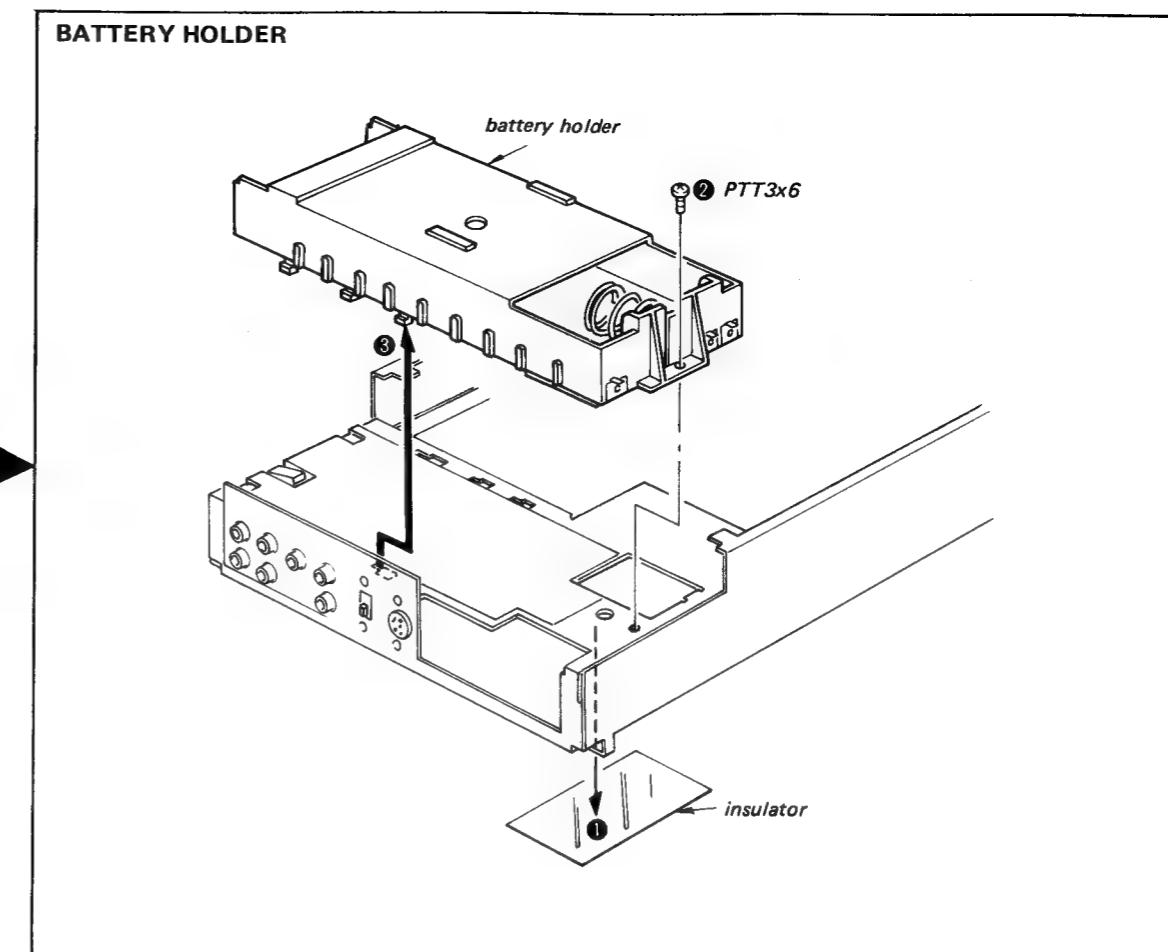
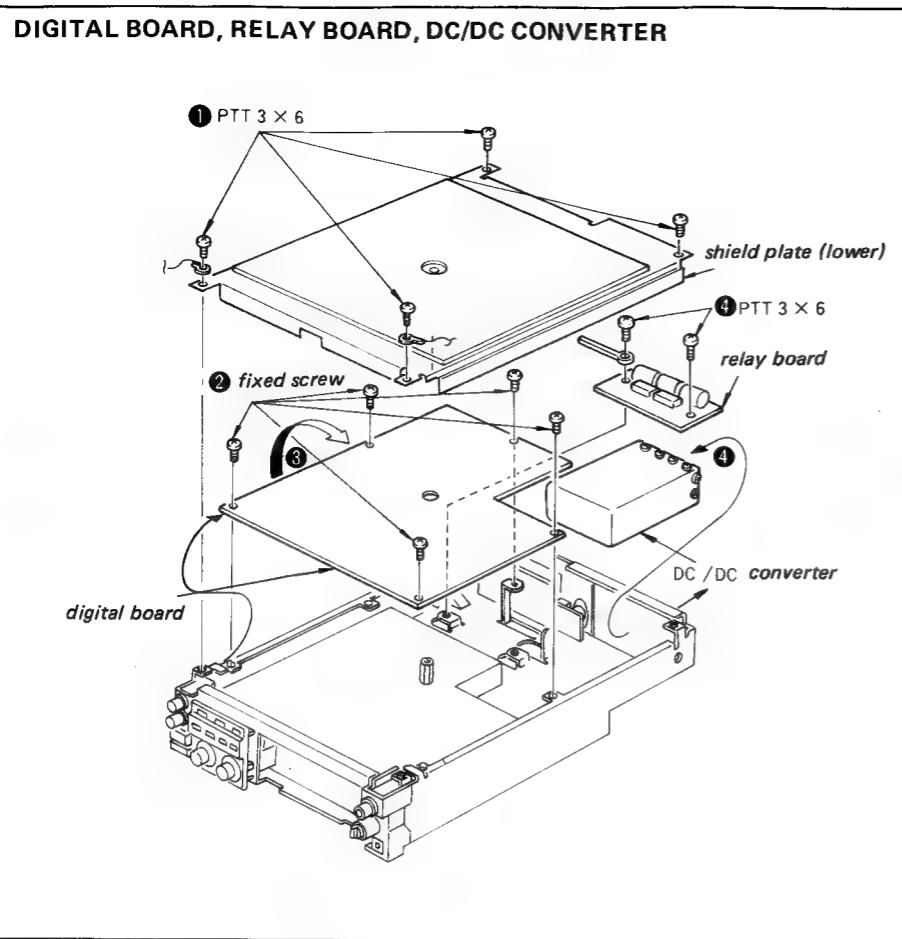


ANALOG BOARD, POWER BOARD



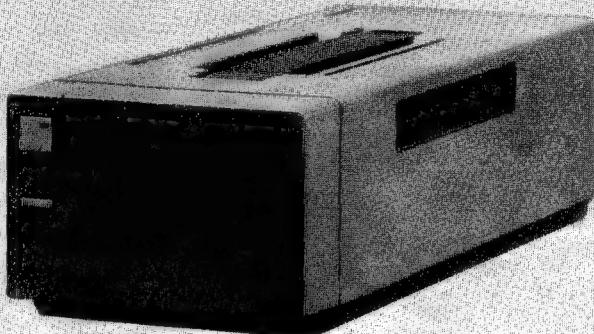
FRONT PANEL (METER DRIVE BOARD)





AC-700

*US Model
Canadian Model
AEP Model
UK Model*



AC POWER ADAPTOR

SPECIFICATIONS

Power Requirements:	US, Canadian Model --- AC 120V ac, 60Hz AEP Model ----- AC 220V ac, 50/60Hz UK Model ----- 240V ac, 50/60Hz
Rated Power:	79W
Output Voltage: (with AC Power Adaptor)	DC 14V \pm 5% (with rated power \pm 10% input, 1.6A dc load)
Output Current: (at Charging mode)	DC 2.1A \pm 10% (at battery voltage 10-16.5V)
Dimensions:	Approx. 107x80x305 mm (w/h/d) (4 $\frac{1}{4}$ x3 $\frac{1}{4}$ x12 $\frac{1}{8}$ inches)
Weight:	Approx. 3.2kg (7 lbs 1oz) net

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SAFETY-RELATED COMPONENT WARNING!!

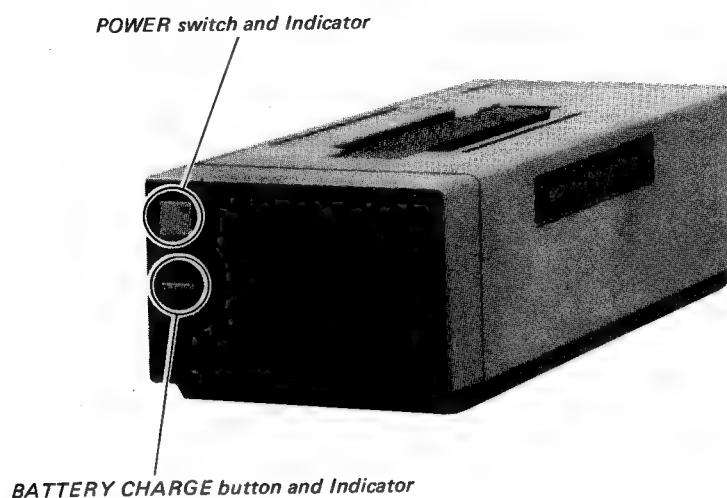
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SONY

SERVICE MANUAL

LOCATION



SECTION 1

CIRCUIT DESCRIPTION

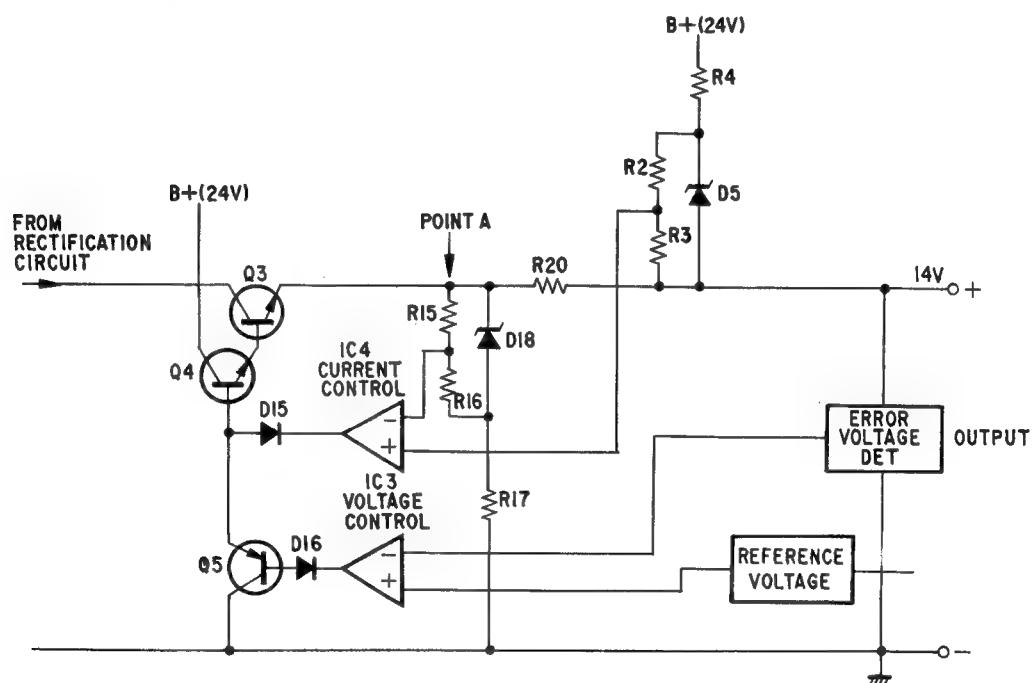
AC-700 is the ac power adaptor for PCM-F1 (digital audio processor). It also has the capability to charge the NP-1 rechargeable battery pack for PCM-F1.

— AC Power Adaptor

Figure 1 is the voltage, current and control section circuit diagram for AC-700. When PCM-F1 is connected to AC-700 operating as an AC power adaptor, reference voltage and load voltage are compared by the voltage control op amp (IC3), which controls series transistor Q3 so that the load voltage becomes 14V regulated voltage.

If load current is less than 2.1A (1.6A is normal) the current control op amp IC4 uses point A as the reference, and because the noninverted input terminal is biased to the positive side and the inverted input terminal to the negative side, the output terminal goes high and D15 cuts off.

Therefore, IC4 does not affect the operation of series transistor O3.



(Figure 1)

– Charging

Figure 2 is a circuit diagram of the charging control section prepared for charging. When the BATTERY CHARGE button (SW2) is pushed, the charging control IC (IC2) trigger terminal is grounded, flip-flop is set and the output terminal goes high.

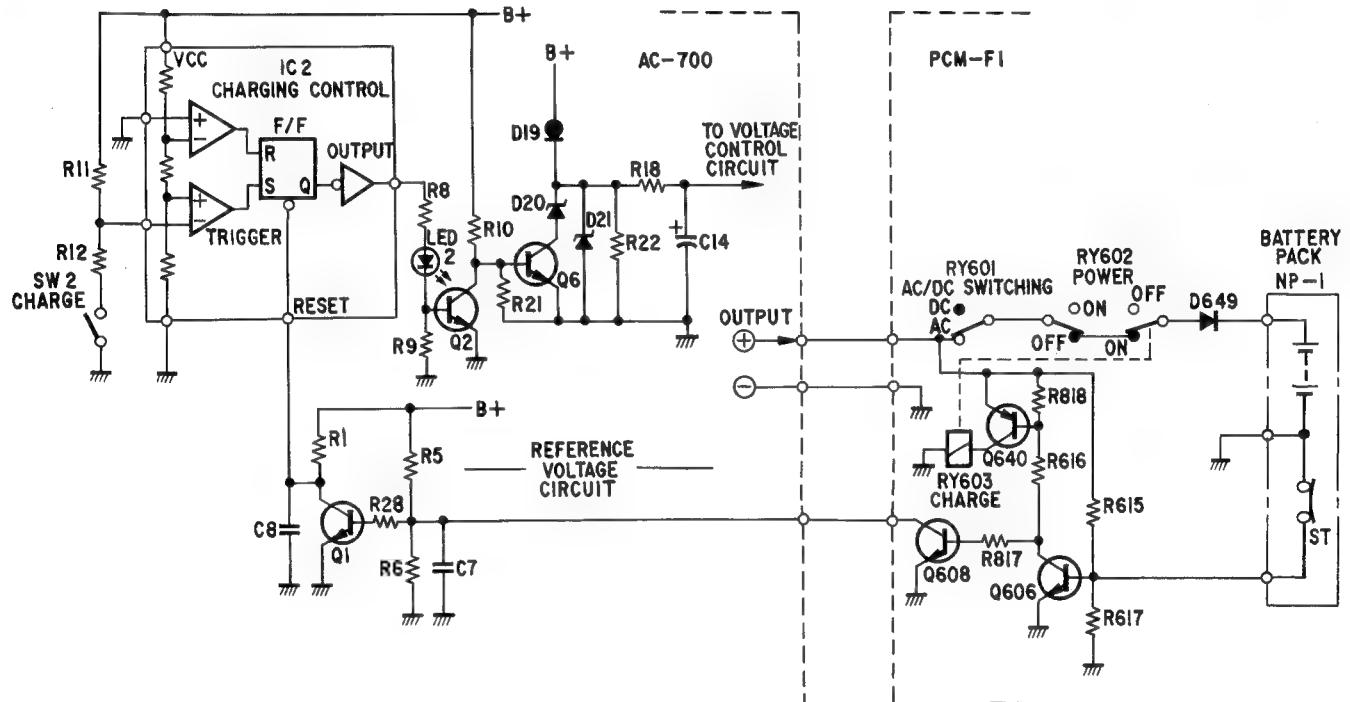
Then the CHARGE lamp (LED2) lights up, Q2 goes on and Q6 goes off.

There are two zener diodes, D20 (for AC power adaptor) and D21 (for charging) in the reference voltage circuit, which are switched by Q6.

The zener voltage for D20 is lower than that of D21. When Q6 is on, D20 and D21 are connected parallel, but because D20 zener voltage is lower, D21 does not operate.

When Q6 is off (during charging), D20 is cut off and D21 generates reference voltage. Therefore, during charging, higher output voltage than for when operating as an AC power adaptor is supplied to the battery pack (NP-1) which is the load. However, when charging current goes over 2.1A,

the voltage drop generated at current detection resistor R20 (see Fig. 1) is applied to the current control op amp's (IC4) noninverted input terminal and the output terminal shifts to low level. Then D15 turns on, series transistor Q3 V_{CE} gets larger and output voltage drops. As a result, charging current does not go over 2.1A but becomes 2.1A regulated current. When charging current is below 2.1A the load voltage becomes 17V regulated voltage because of the voltage control circuit.



(Figure 2)

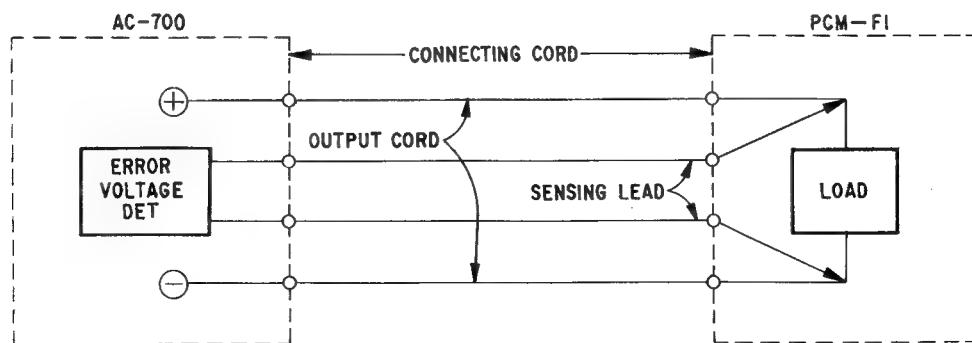
Remote Sensing

AC-700 utilizes remote sensing in the voltage control section error voltage detection circuit. When the load current for the output cord connecting the regulated voltage power supply output terminal and the load is large, an exceptionally large voltage drop results, adversely affecting the load side.

When charging is completed, the internal temperature of battery pack NP-1 rises, the built-in thermostat ST operates and turns off.

When ST goes off, the PCM-F1 Q606 (see Fig. 2) goes on, Q640 goes on, RY603 is set and the charging circuit is interrupted. Then Q608 goes off, AC-700, Q1 goes on, IC2 reset terminal becomes 0V (low level), the output terminal becomes 0V (low level) and LED2 goes out to indicate charging completed.

On AC-700, the error voltage detection is led not from the output terminal but through the connecting cord sensing lead directly from the PCM-F1 power supply input terminal, so the voltage drop because of the output cord and connector contact resistance is compensated for.

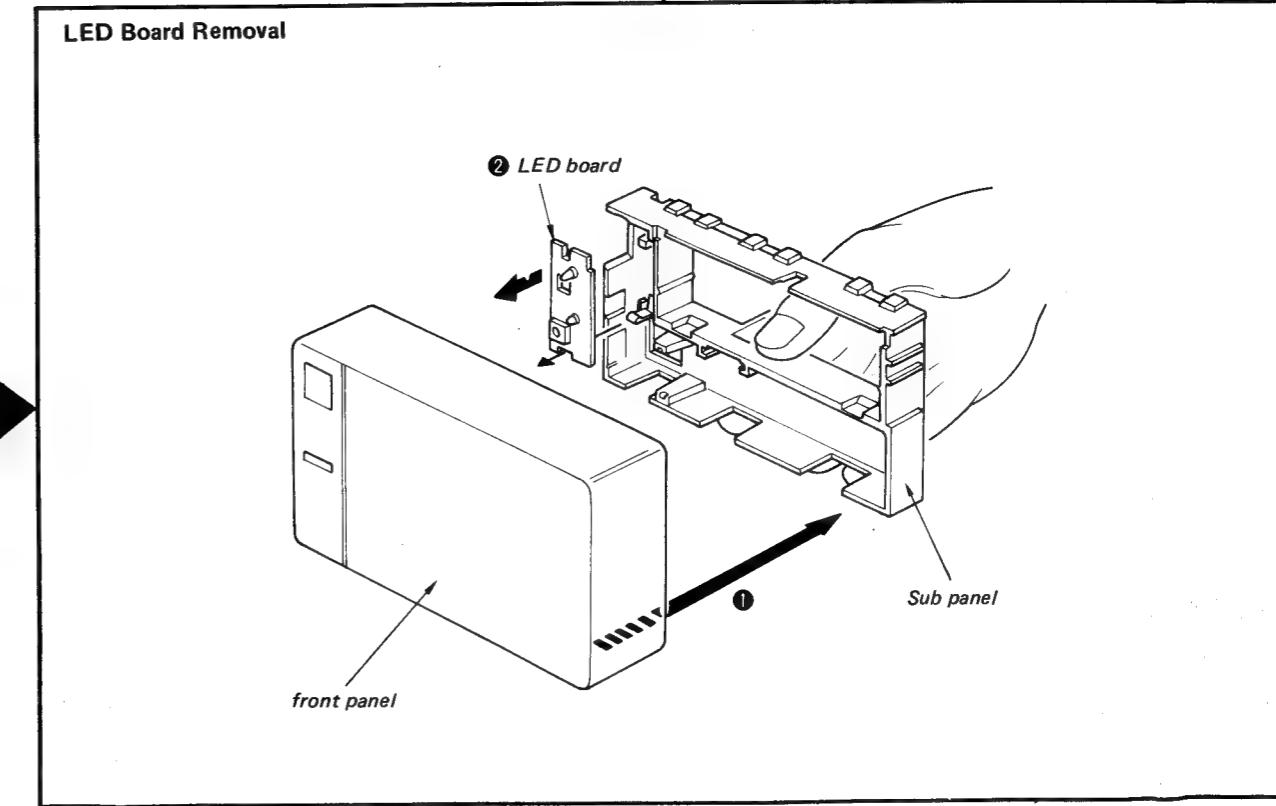
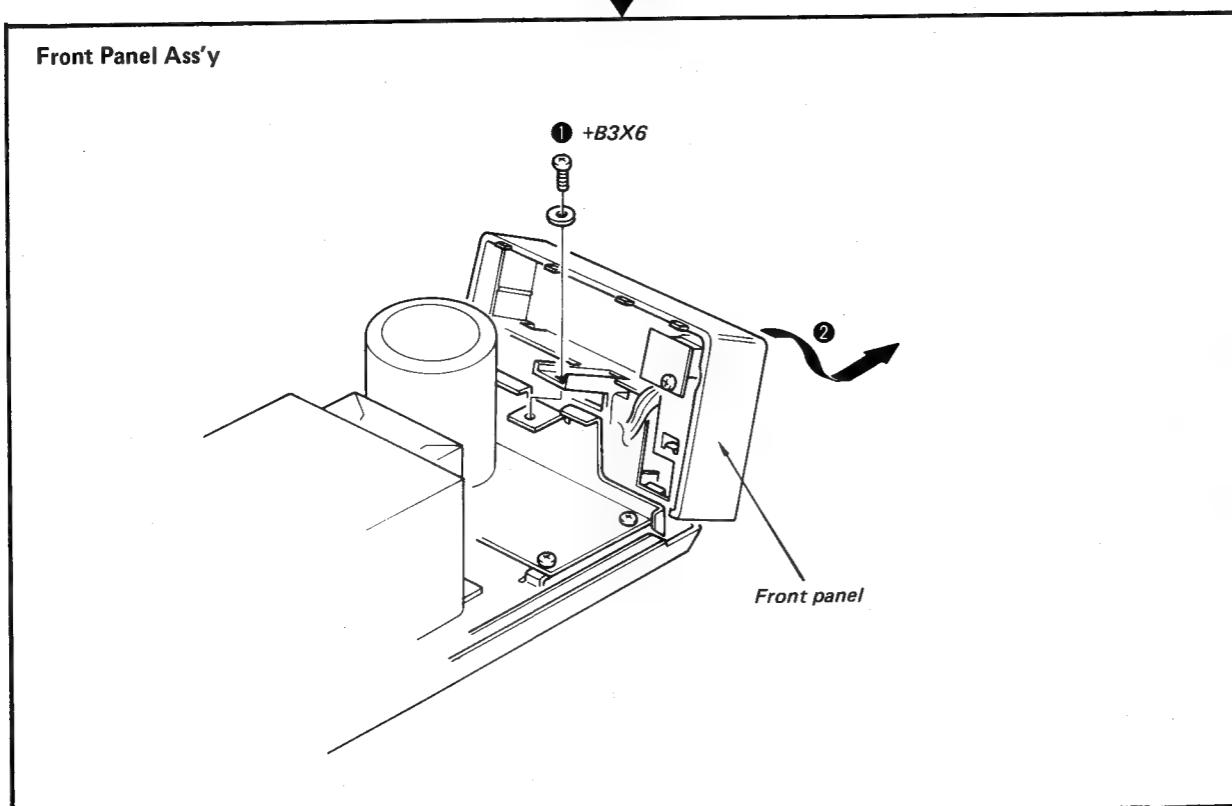
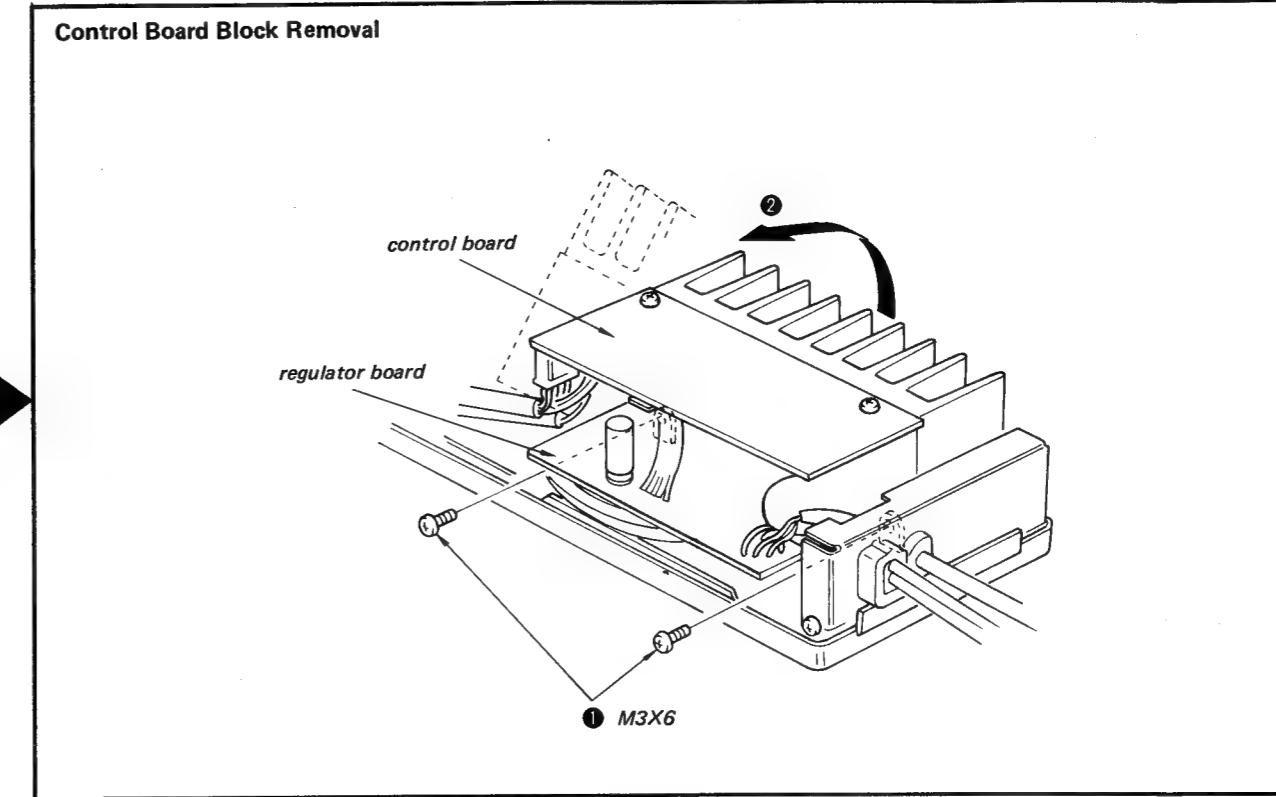
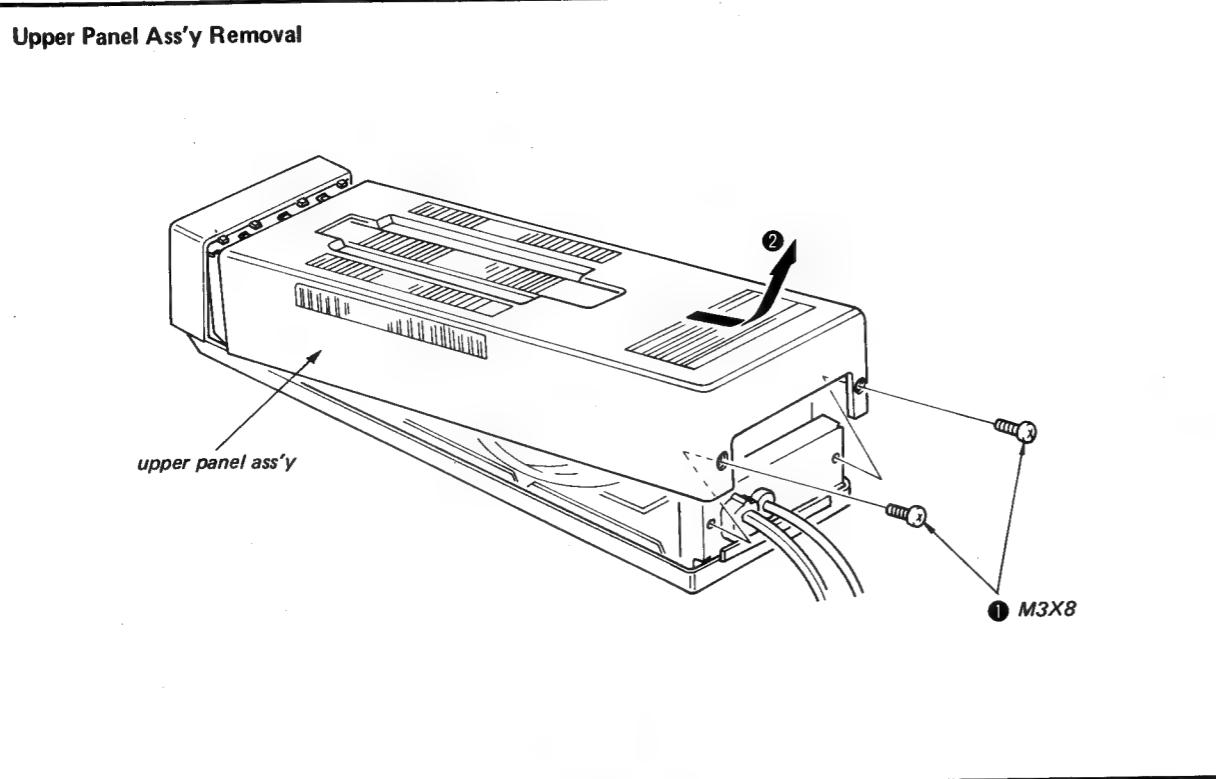


(Figure 3)

SECTION 2
DISASSEMBLY

AC-700 AC-700

- Remove the parts in the numerical order.



A

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1

D

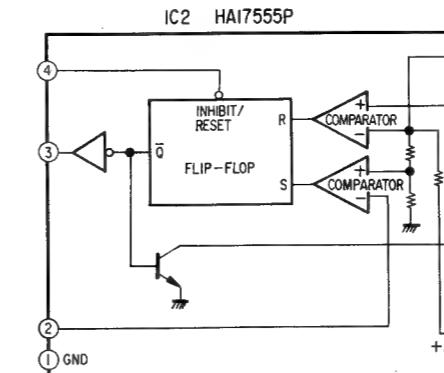
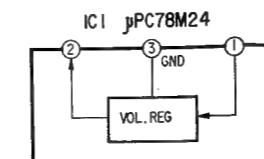
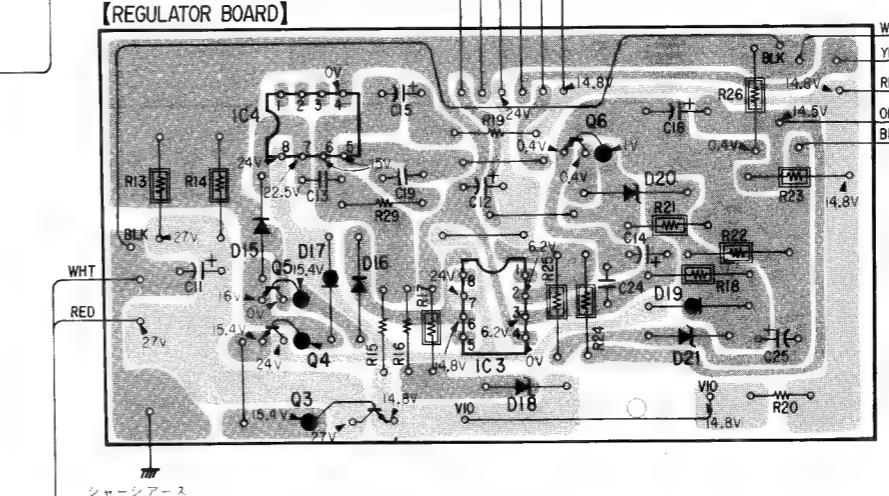
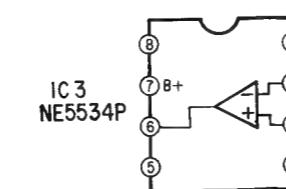
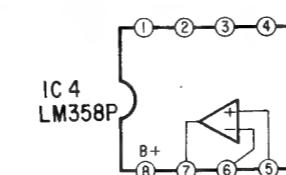
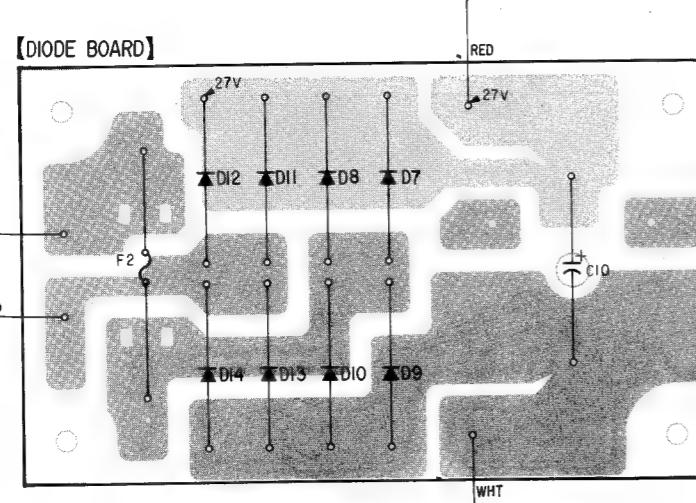
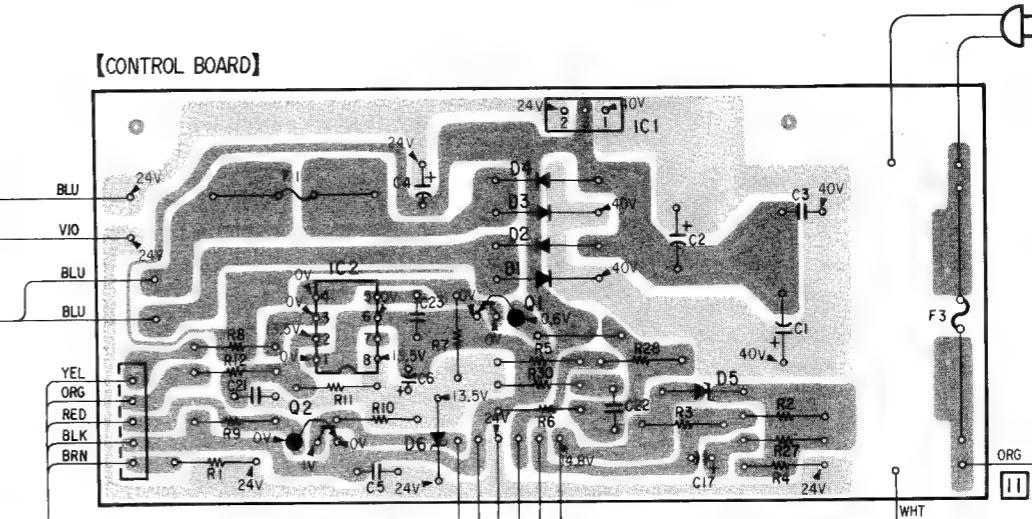
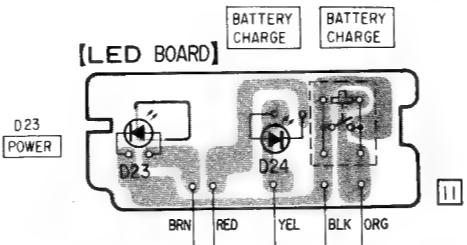
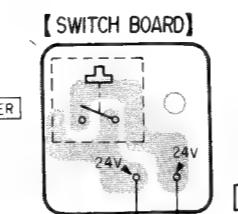
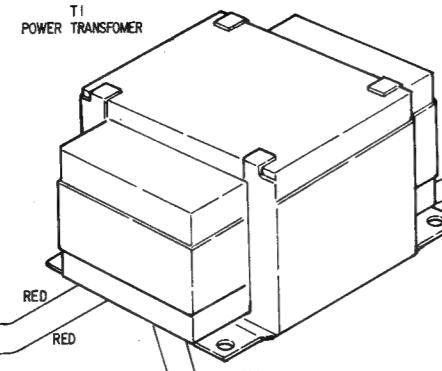
7

1

G

H

3-1. MOUNTING DIAGRAM



- : parts extracted from the component side.
- : part mounted on the conductor side.
- : B+ pattern

3-2. SCHEMATIC DIAGRAM

A

B

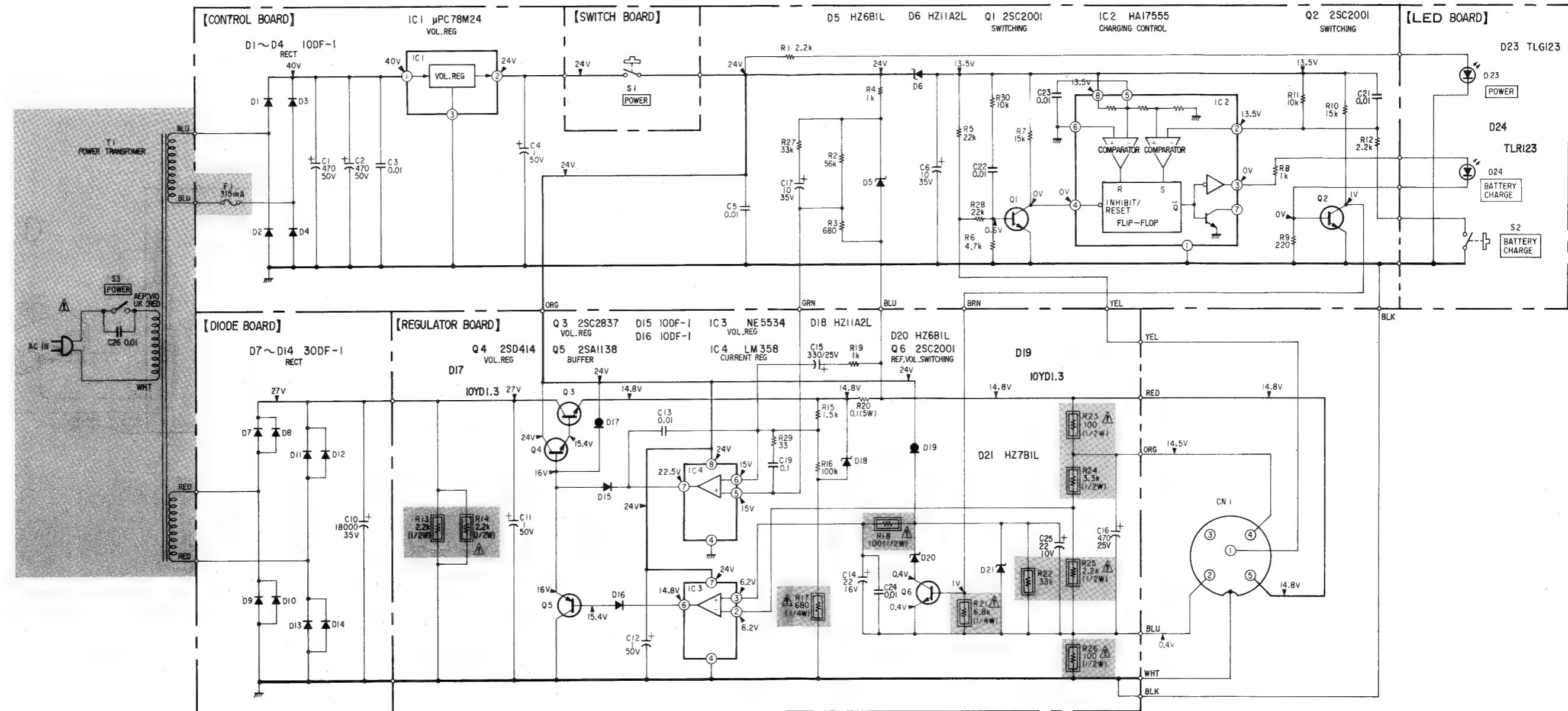
C

D

E

F

G



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltage are measured with a VOM (50kΩ/V)

- All resistors are in ohms, $\frac{1}{4}W$ unless otherwise noted.
 $k\Omega$: 1000Ω , $M\Omega$: $1000k\Omega$
- : nonflammable resistor.
- : panel designation.
- : B+ bus.
- Switch

Ref. No.	Switch	Position
S1	POWER	OFF
S2	BATTERY CHARGE	OFF

3-3. MOUNTING DIAGRAM

A

1

1

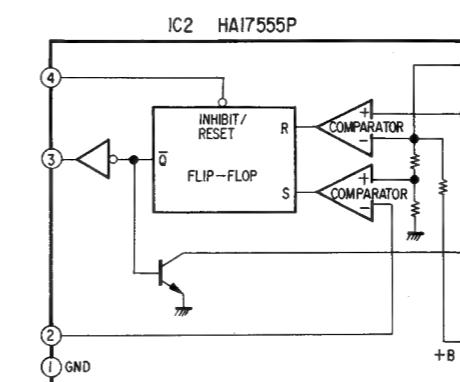
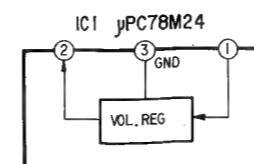
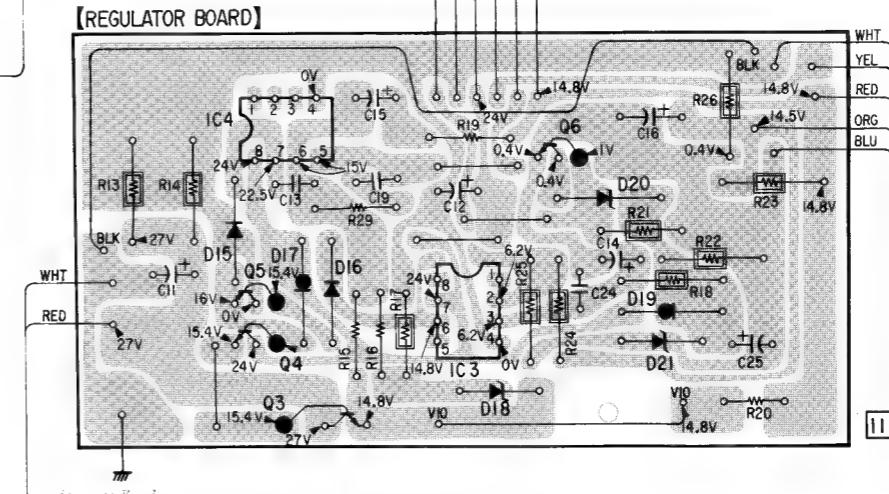
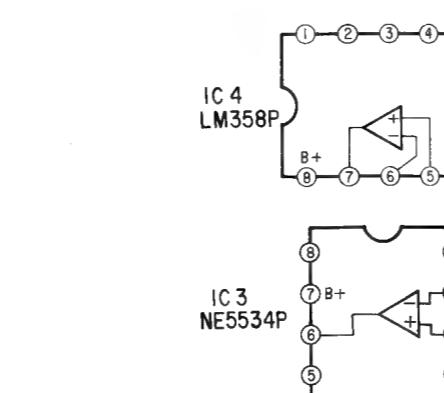
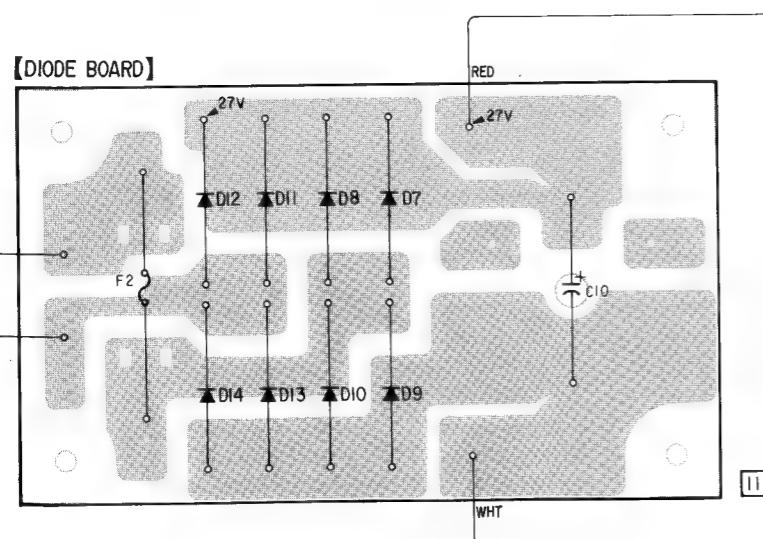
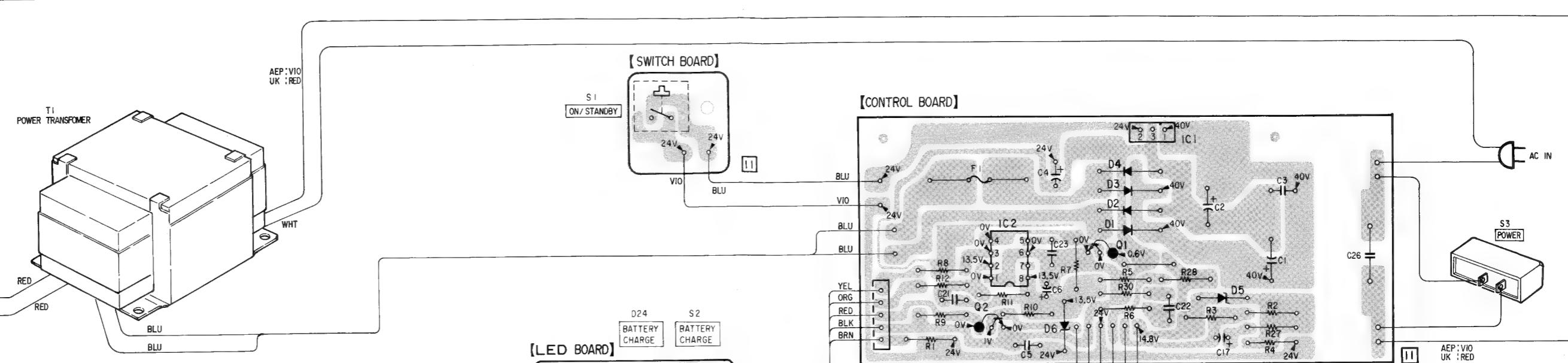
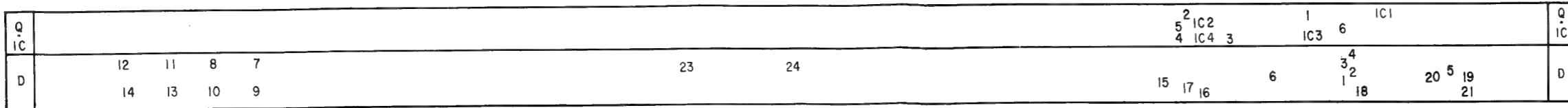
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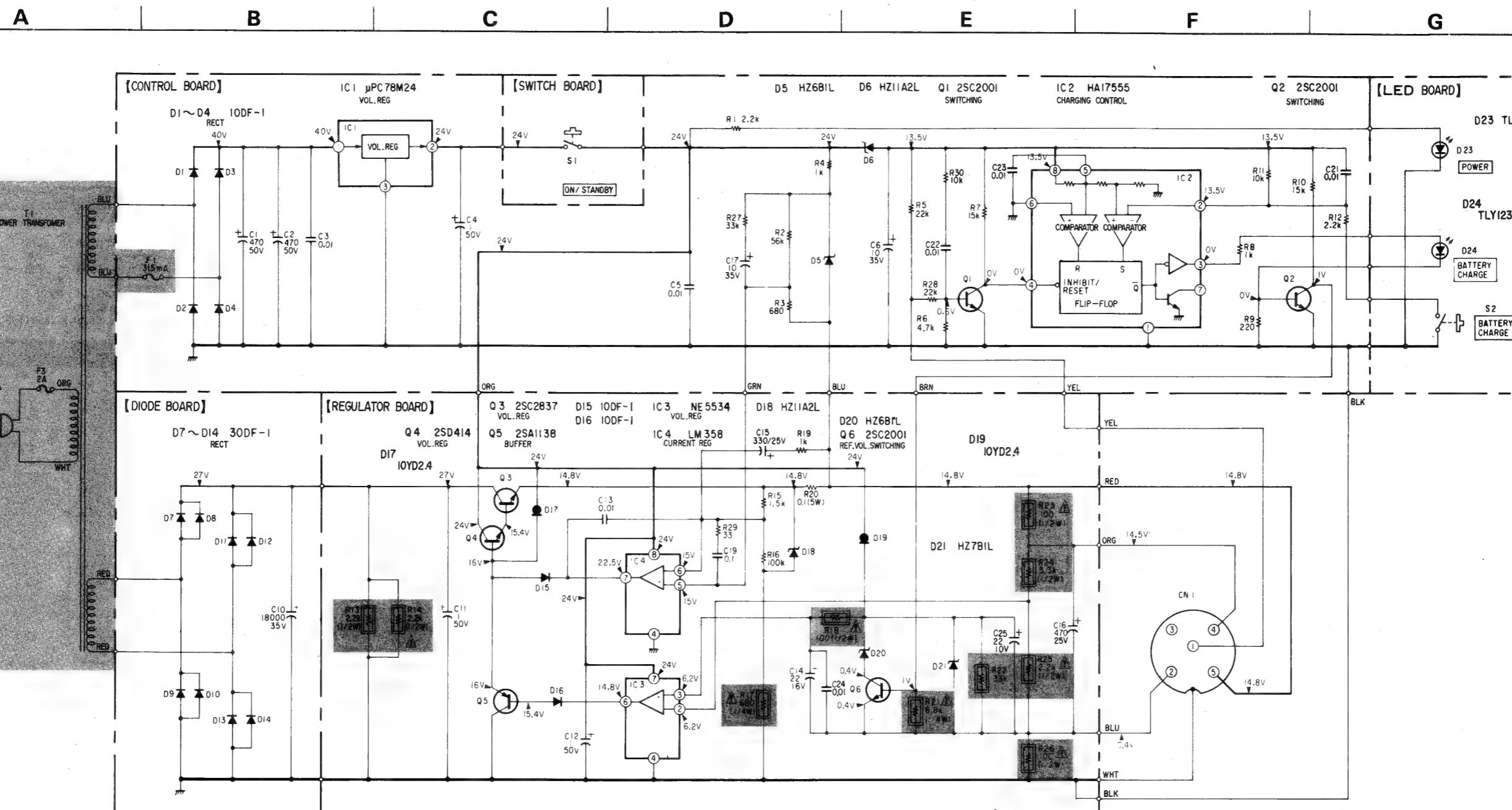
G

H



- : parts extracted from the component side.
- : part mounted on the conductor side.
- ▨ : B+ pattern

3-4. SCHEMATIC DIAGRAM



Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltage are measured with a VOM (50kΩ/V)

- All resistors are in ohms, $\frac{1}{2}$ W unless otherwise noted.
 $k\Omega$: 1000Ω , $M\Omega$: $1000k\Omega$
-  : nonflammable resistor.
-  : panel designation.
-  : B+ bus.
- Switch

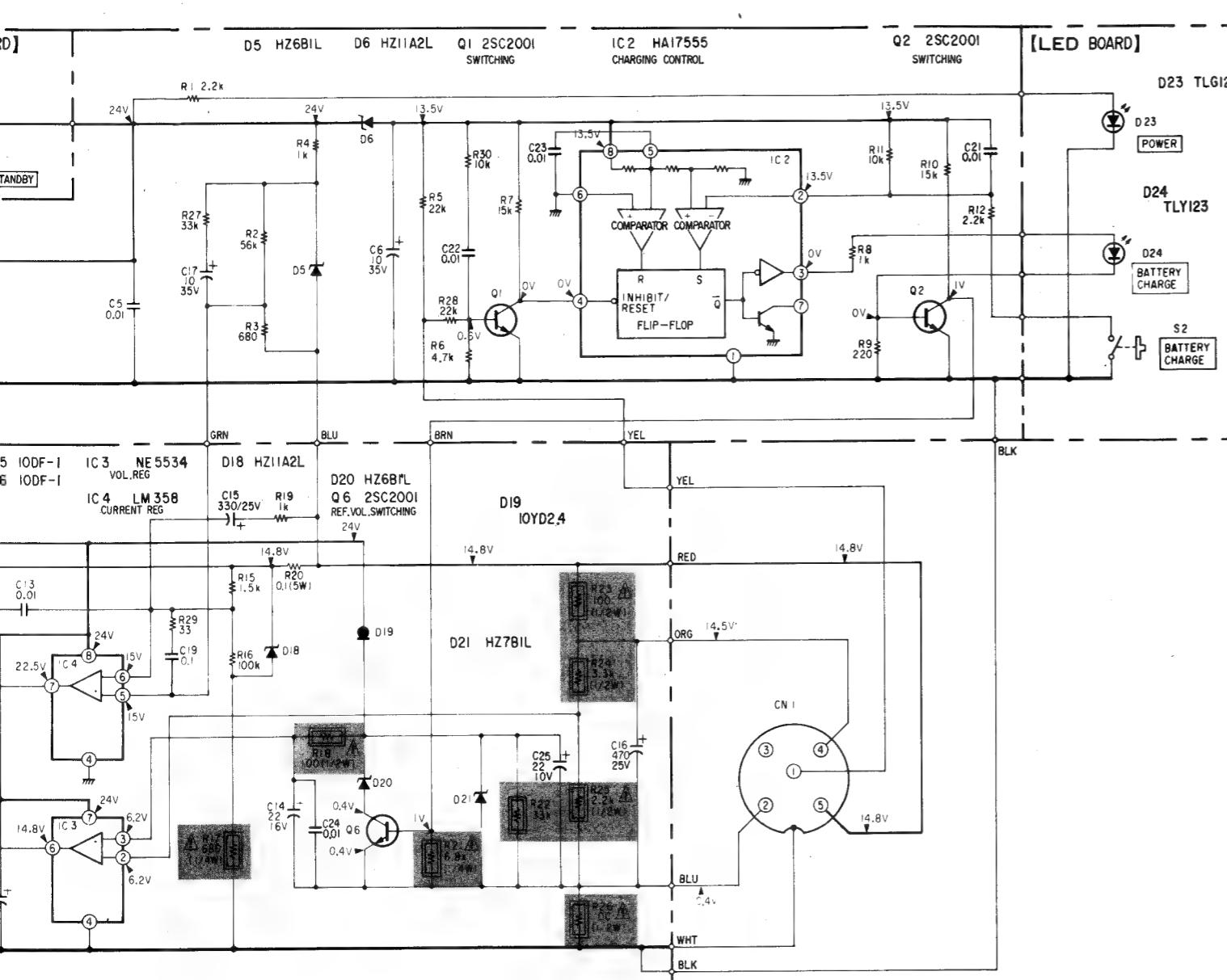
Ref. No.	Switch	Position
S1	POWER	OFF
S2	BATTERY CHARGE	OFF

D

E

F

G



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltage are measured with a VOM (50kΩ/V)

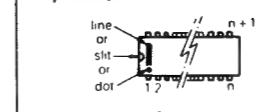
- All resistors are in ohms, $\frac{1}{2}$ W unless otherwise noted.
 $\text{k}\Omega$: 1000Ω , $\text{M}\Omega$: $1000\text{k}\Omega$
- : nonflammable resistor.
- : panel designation.
- : B+ bus.
- Switch

Ref. No.	Switch	Position
S1	POWER	OFF
S2	BATTERY CHARGE	OFF

• Semiconductor Lead Layouts

10DF1, 30DF1
10DF2, 30DF2
10YD2.4
10YG1.1
HZ6B1L
HZ11A2L
HZ11A3L
HZ7B1L
HZ7B2L

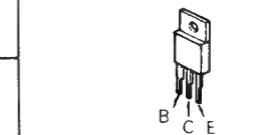
LM358P
NE555N
NE5534P
NE5534AN
μPC358C



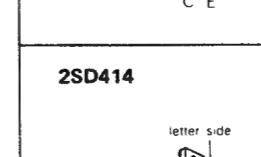
2SC2001



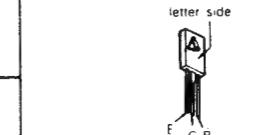
2SC2837



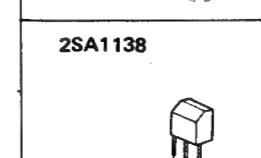
μA78M24UC



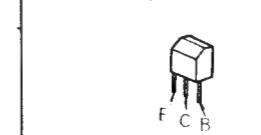
2SD414



μPC78M24



2SA1138



SECTION 4

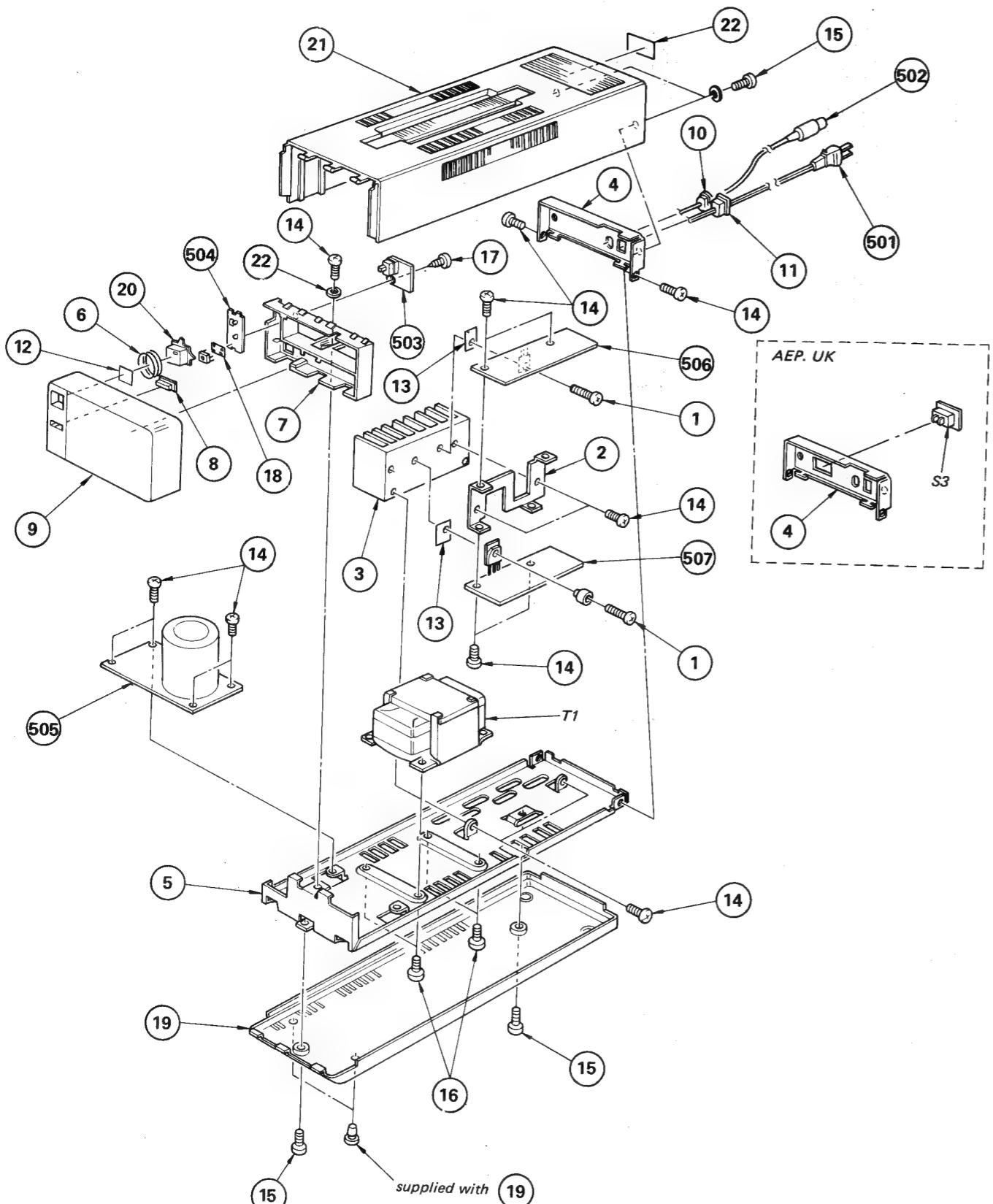
EXPLODED VIEW AND PARTS LIST

A

8

1

1



GENERAL SECTION

<u>No.</u>	<u>Part No.</u>	<u>Description</u>
1	2-259-121-00	SCREW M3X10
2	2-362-366-00	BRACKET, PC BOARD
3	2-362-367-00	HEAT SINK
4	2-362-388-00	(US, CND).....PANEL, REAR
5	2-362-369-00	CHASSIS
6	2-291-509-00	SPRING
7	2-291-527-00	PANEL, SUB
8	2-291-502-00	BUTTON (B)
9	2-362-357-00	(US, CND).....PANEL, FRONT
9	2-362-357-11	(AEP, UK).....PANEL, FRONT
10	3-005-073-00	BUSHING, CORD
11	3-703-244-00	BUSHING, CORD
12	3-831-441-11	CUSHION
13	4-857-833-00	SHEET
14	7-682-547-09	SCREW +B 3X6
15	7-682-548-09	SCREW +B M3X8
16	7-682-560-04	SCREW M4X6
17	7-685-145-21	SCREW +PTP M3X6
18	9-911-863-XX	SPACER
19	A-6703-160-A	PANEL ASSY, LOWER
20	X-2291-502-0	BUTTON (A)
21	X-2291-504-0	PANEL ASSY, UPPER

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
501A	1-555-795-00	(AEP)	CORD, POWER	
501A	1-556-036-00	(UK)	CORD, POWER	
501A	1-555-701-00	(US,Canadian)	CORD, POWER	
502	1-556-379-00	CORD, OUTPUT, DC		
503	1-608-159-00	PC BOARD, SWITCH		
504	1-608-160-00	PC BOARD, LED		
505	1-608-161-00	PC BOARD, DIODE		
506	1-608-162-00	PC BOARD, CONTROL		
507	1-608-163-00	PC BOARD, REGULATOR		
C1	1-123-363-00	ELECT	470MF	50V
C2	1-123-363-00	ELECT	470MF	50V
C3	1-130-297-00	FILM	0.01MF	100V
C4	1-131-450-00	TANTAL	1MF	50V
C5	1-130-297-00	FILM	0.01MF	100V
C6	1-123-356-00	ELECT	10MF	50V
C7	1-108-579-00	FILM	0.01MF	
C8	1-108-579-00	FILM	0.01MF	
C10	1-125-312-00	ELECT	18000MF	35V
C11	1-131-450-00	TANTAL	1MF	50V
C12	1-131-450-00	TANTAL	1MF	50V
C13	1-130-297-00	FILM	0.01MF	100V
C14	1-123-520-00	TANTAL	22MF	16V
C15	1-123-335-00	ELECT	330MF	25V
C16	1-123-696-00	ELECT	470MF	25V
C17	1-123-356-00	ELECT	10MF	35V
C19	1-161-773-00	CERAMIC	0.01MF	25V
C21	1-108-579-00	FILM	0.01MF	
C22	1-108-579-00	FILM	0.01MF	
C23	1-108-579-00	FILM	0.01MF	
C24	1-130-297-00	FILM	0.01MF	100V
C25	1-131-520-00	TANTAL	22MF	16V
C26	1-161-744-00	(AEP,UK)...CERAMIC	0.01MF	400V
CN1	1-508-743-00	CONNECTOR 5P		
D1	8-719-210-12	DIODE 10DF2		
D2	8-719-210-12	DIODE 10DF2		
D3	8-719-210-12	DIODE 10DF2		
D4	8-719-210-12	DIODE 10DF2		
D5	8-719-910-64	DIODE HZ6B1L		
D6	8-719-910-13	DIODE HZ11A3L		
D7	8-719-230-02	DIODE 30DF2		
D8	8-719-230-02	DIODE 30DF2		
D9	8-719-230-02	DIODE 30DF2		
D10	8-719-230-02	DIODE 30DF2		
D11	8-719-230-02	DIODE 30DF2		
D12	8-719-230-02	DIODE 30DF2		

- Items with no description are not seldom required.
- Items marked "♦" are seldom required. They are seldom required for service. Some departments are required to be paid when ordered.
- Due to standardization of numbers ($\Delta-\Delta\Delta-\Delta\Delta$) may be different sets.

NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers ($\Delta-\Delta\Delta\Delta-\Delta\Delta\Delta-X$ or $\Delta-\Delta\Delta\Delta\Delta-\Delta\Delta\Delta-X$) may be different from those used in the set.

CAPACITORS

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

• F : no

COILS

D

GENERAL SECTION

No.	Part No.	Description
1	2-259-121-00	SCREW M3X10
2	2-362-366-00	BRACKET, PC BOARD
3	2-362-367-00	HEAT SINK
4	2-362-388-00	(US, CND).....PANEL, REAR
5	2-362-369-00	CHASSIS
6	2-291-509-00	SPRING
7	2-291-527-00	PANEL, SUB
8	2-291-502-00	BUTTON (B)
9	2-362-357-00	(US, CND).....PANEL, FRONT
9	2-362-357-11	(AEP, UK).....PANEL, FRONT
10	3-005-073-00	BUSHING, CORD
11	3-703-244-00	BUSHING, CORD
12	3-831-441-11	CUSHION
13	4-857-833-00	SHEET
14	7-682-547-09	SCREW +B 3X6
15	7-682-548-09	SCREW +B M3X8
16	7-682-560-04	SCREW M4X6
17	7-685-145-21	SCREW +PTP M3X6
18	9-911-863-XX	SPACER
19	A-6703-160-A	PANEL ASSY, LOWER
20	X-2291-502-0	BUTTON (A)
21	X-2291-504-0	PANEL ASSY, UPPER
22	7-688-003-02	WASHER
23	4-026-252-00	BUSHING, INSULATING

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-555-795-00	(AEP).....CORD, POWER
501	1-555-036-00	(UK).....CORD, POWER
501	1-555-701-00	(US,Canadian)....CORD, POWER
502	1-556-379-00	CORD, OUTPUT, DC
503	1-608-159-00	PC BOARD, SWITCH
504	1-608-160-00	PC BOARD, LED
505	1-608-161-00	PC BOARD, DIODE
506	1-608-162-00	PC BOARD, CONTROL
507	1-608-163-00	PC BOARD, REGULATOR
C1	1-123-363-00	ELECT 470MF 50V
C2	1-123-363-00	ELECT 470MF 50V
C3	1-130-297-00	FILM 0.01MF 100V
C4	1-131-450-00	TANTAL 1MF 50V
C5	1-130-297-00	FILM 0.01MF 100V
C6	1-123-356-00	ELECT 10MF 50V
C7	1-108-579-00	FILM 0.01MF
C8	1-108-579-00	FILM 0.01MF
C10	1-125-312-00	ELECT 18000MF 35V
C11	1-131-450-00	TANTAL 1MF 50V
C12	1-131-450-00	TANTAL 1MF 50V
C13	1-130-297-00	FILM 0.01MF 100V
C14	1-123-520-00	TANTAL 22MF 16V
C15	1-123-335-00	ELECT 330MF 25V
C16	1-123-696-00	ELECT 470MF 25V
C17	1-123-356-00	ELECT 10MF 35V
C19	1-161-773-00	CERAMIC 0.01MF 25V
C21	1-108-579-00	FILM 0.01MF
C22	1-108-579-00	FILM 0.01MF
C23	1-108-579-00	FILM 0.01MF
C24	1-130-297-00	FILM 0.01MF 100V
C25	1-131-520-00	TANTAL 22MF 16V
C26	1-161-744-00	(AEP,UK)....CERAMIC 0.01MF 400V
CN1	1-508-743-00	CONNECTOR 5P
D1	8-719-210-12	DIODE 10DF2
D2	8-719-210-12	DIODE 10DF2
D3	8-719-210-12	DIODE 10DF2
D4	8-719-210-12	DIODE 10DF2
D5	8-719-910-64	DIODE HZ681L
D6	8-719-910-13	DIODE HZ11A3L
D7	8-719-230-02	DIODE 30DF2
D8	8-719-230-02	DIODE 30DF2
D9	8-719-230-02	DIODE 30DF2
D10	8-719-230-02	DIODE 30DF2
D11	8-719-230-02	DIODE 30DF2
D12	8-719-230-02	DIODE 30DF2

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D13	8-719-230-02	DIODE 30DF2
D14	8-719-230-02	DIODE 30DF2
D15	8-719-210-12	DIODE 10DF2
D16	8-719-210-12	DIODE 10DF2
D17	8-719-200-24	(AEP,UK).....DIODE 10YD2.4
D17	8-719-261-11	(US,Canadian)....DIODE 10YG1.1
D18	8-719-910-13	DIODE HZ11A3L
D19	8-719-200-24	(AEP,UK).....DIODE 10YD2.4
D19	8-719-261-11	(US,Canadian)....DIODE 10YG1.1
D20	8-719-910-64	DIODE HZ681L
D21	8-719-910-75	DIODE HZ782L
D23	8-719-812-33	DIODE TLG123
D24	8-719-812-32	(AEP,UK).....DIODE TLY123
D24	8-719-812-31	(US,Canadian)....DIODE TLR123
F1	1-532-447-XX	FUSE 0.315A
F2	1-532-630-00	FUSE 5A
F3	1-532-268-00	(US,Canadian)....FUSE 2A
IC1	8-759-978-24	IC UA78M24UC
IC2	8-759-905-55	IC NE555N
IC3	8-759-905-34	IC NE5534AN
IC4	8-759-135-80	IC UPC358C
Q1	8-729-100-13	TRANSISTOR 2SC2001
Q2	8-729-100-13	TRANSISTOR 2SC2001
Q3	8-729-383-73	TRANSISTOR 2SC2837
Q4	8-729-141-43	TRANSISTOR 2SD414
Q5	8-729-113-82	TRANSISTOR 2SA1138
Q6	8-729-100-13	TRANSISTOR 2SC2001
R1	1-246-481-00	CARBON 2.2K 1/4W
R2	1-246-515-00	CARBON 56K 1/4W
R3	1-246-469-00	CARBON 680 1/4W
R4	1-246-473-00	CARBON 1K 1/4W
R5	1-246-505-00	CARBON 22K 1/4W
R6	1-246-489-00	CARBON 4.7K 1/4W
R7	1-246-501-00	CARBON 15K 1/4W
R8	1-246-473-00	CARBON 1K 1/4W
R9	1-246-457-00	CARBON 220 1/4W
R10	1-246-501-00	CARBON 15K 1/4W
R11	1-246-497-00	CARBON 10K 1/4W
R12	1-246-481-00	CARBON 2.2K 1/4W
R13	1-214-872-00	METAL 2.2K 1/2W F
R14	1-214-872-00	METAL 2.2K 1/2W F
R15	1-214-733-00	METAL 1.5K 1/4W
R16	1-214-777-00	METAL 100K 1/4W
R17	1-214-749-00	METAL 6.8K 1/4W F
R18	1-214-830-00	METAL 100 1/2W F

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R19	1-214-729-00	METAL 1K 1/4W
R20	1-214-789-00	METAL 0.1 1/4W
R21	1-214-749-00	METAL 6.8K 1/4W F
R22	1-214-901-00	METAL 33K 1/2W F
R23	1-214-830-00	METAL 100 1/2W F
R24	1-214-876-00	METAL 3.3K 1/2W F
R25	1-214-872-00	METAL 2.2K 1/2W F
R26	1-214-830-00	METAL 100 1/2W F
R27	1-214-096-00	CARBON 33K 1/4W
R28	1-246-505-00	CARBON 22K 1/4W
R29	1-214-069-00	METAL 33K 1/4W
R30	1-246-497-00	CARBON 10K 1/4W
S1	1-553-926-00	SWITCH, PUSH
S2	1-553-856-00	SWITCH,
S3	1-553-575-00	(AEP,UK)....SWITCH
T1	1-447-441-00	(AEP,UK).....TRANSFORMER, POWER
T1	1-447-440-00	(US,Canadian)....TRANSFORMER, POWER

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

COILS

- MMH : mH, UH : μ H

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

CAPACITORS:
All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.

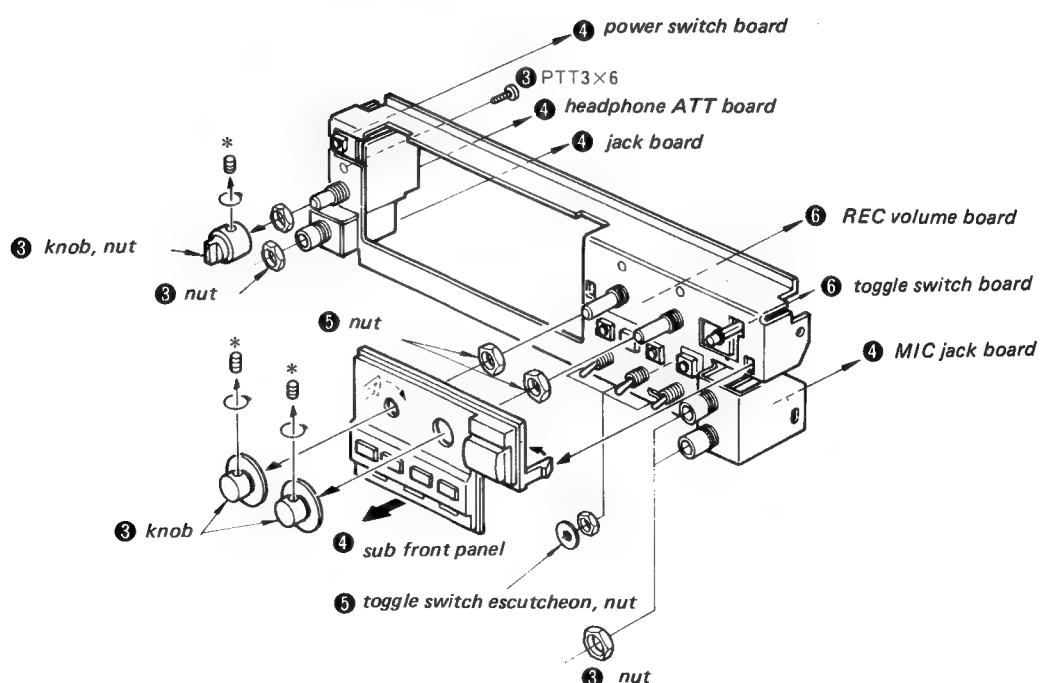
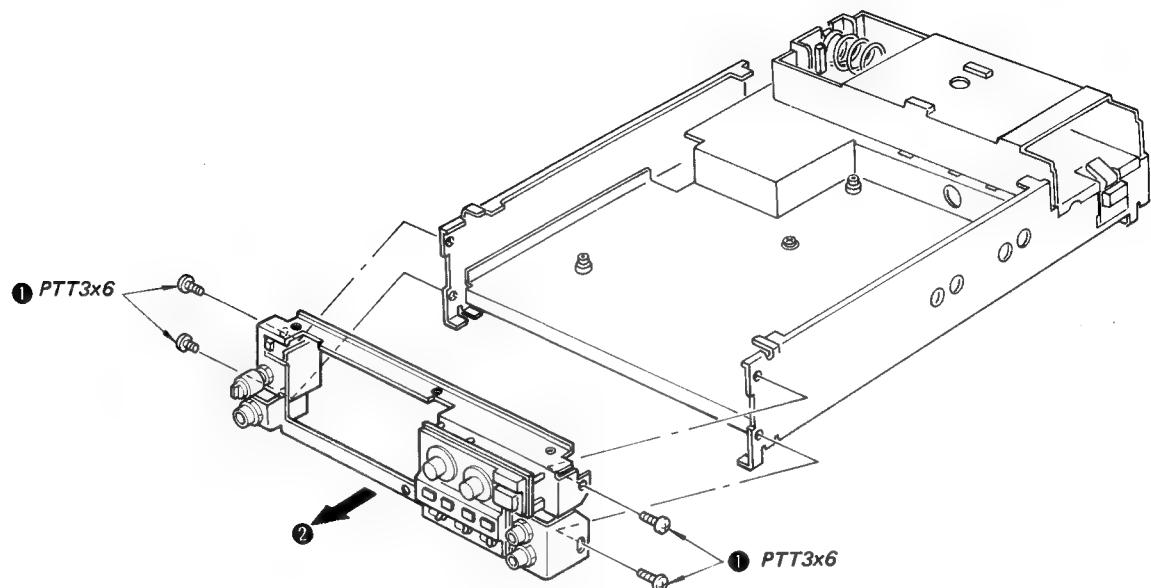
RESISTORS

All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

COILS

MMH : mH, UH : μ H

POWER SWITCH BOARD, HEADPHONE ATT BOARD, JACK BOARD
 REC VOLUME BOARD, MIC JACK BOARD, TOGGLE SWITCH BOARD



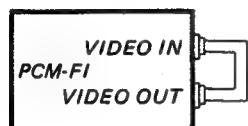
* Use L-shaped wrench 1.27 mm.

SECTION 3

ELECTRICAL ADJUSTMENTS

- Switch position (Except other notice)

MUTING	OFF
COPY	OFF
INPUT	LINE
RES	16BIT
HEADPHONES ATT	0 dB
- E-E mode : VIDEO-IN and VIDEO-OUT terminals are connected.



Power supply : Use AC POWER ADAPTOR-AC-700
 Reference input level

Input terminal	MIC	LINE IN	VIDEO IN
Source impedance	300Ω	10kΩ	75Ω
Signal input level	0.77mV(-60dB)	0.25V(-10dB)	1 V

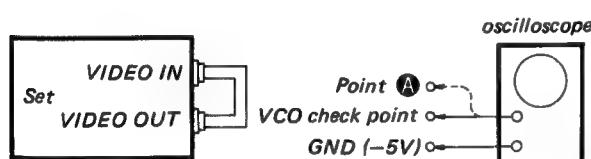
Reference output level

Output terminal	HEADPHONES	LINE OUT	VIDEO OUT
Load impedance	8 Ω	47kΩ	75Ω
Signal output level	49mV(-24dB)	0.25V(-10dB)	1 V

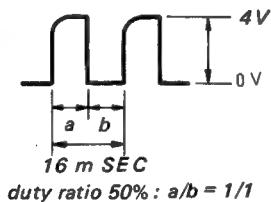
Make an adjustment after turning POWER ON more than half an hour so that the drift by temperature rise is avoided.

VCO ADJUSTMENT

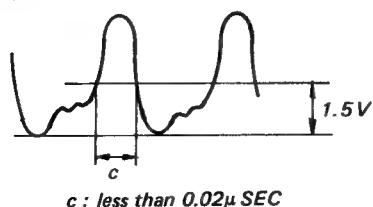
Procedure:



1. Connect VIDEO IN and VIDEO terminals (E-E mode).
2. Connect the oscilloscope to the VCO check point and GND point.
3. Adjust L505 so that duty ratio is 50%.

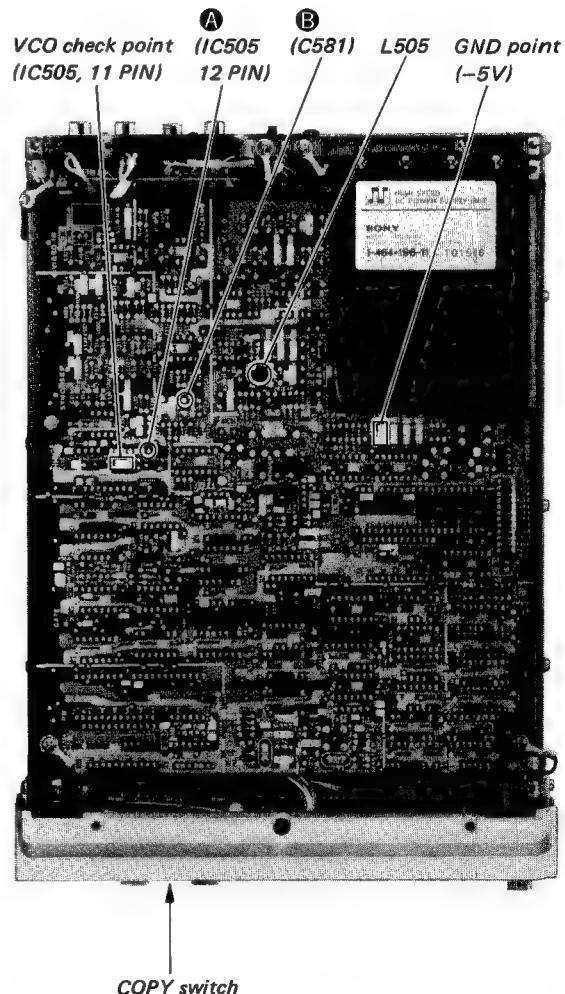


4. Turn the COPY switch to OFF→ON→OFF and then confirm the duty ratio is 50%.
5. Connect the oscilloscope to the point A and GND point.
6. Confirm the duty ratio is as shown below.



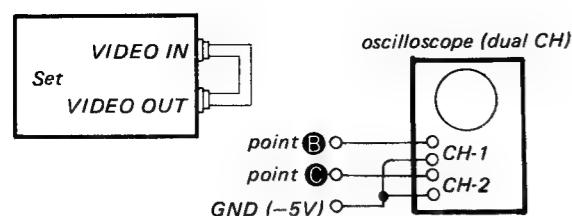
7. If c is 0.02 μ Sec or more, solder the point B (C581 is connected).

Adjustment Location:
 - DIGITAL board -

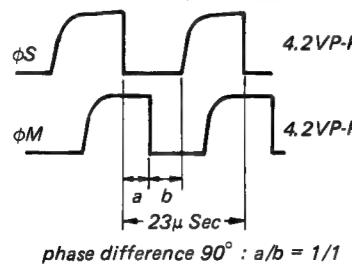


PAL CLOCK ADJUSTMENT (Only PAL/SECAM system)

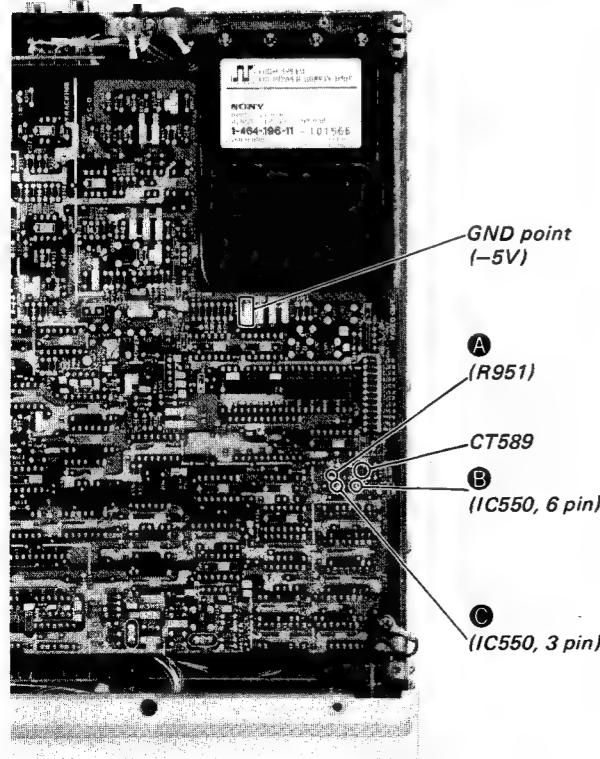
Procedure :



1. Connect VIDEO IN and VIDEO OUT terminals (E-E mode).
2. Solder the point A (R951 is connected).
3. Connect the oscilloscope to the point B (IC550, 6 pin) and point C (IC550, 3 pin).
4. Adjust CT589 so that the phase difference is 90°.

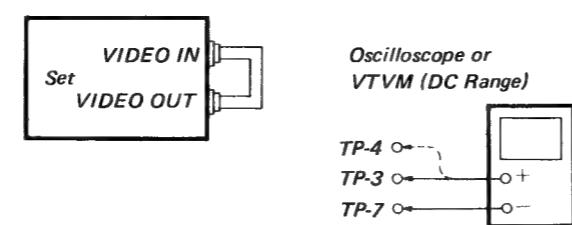


5. Unsolder the point A (R951)

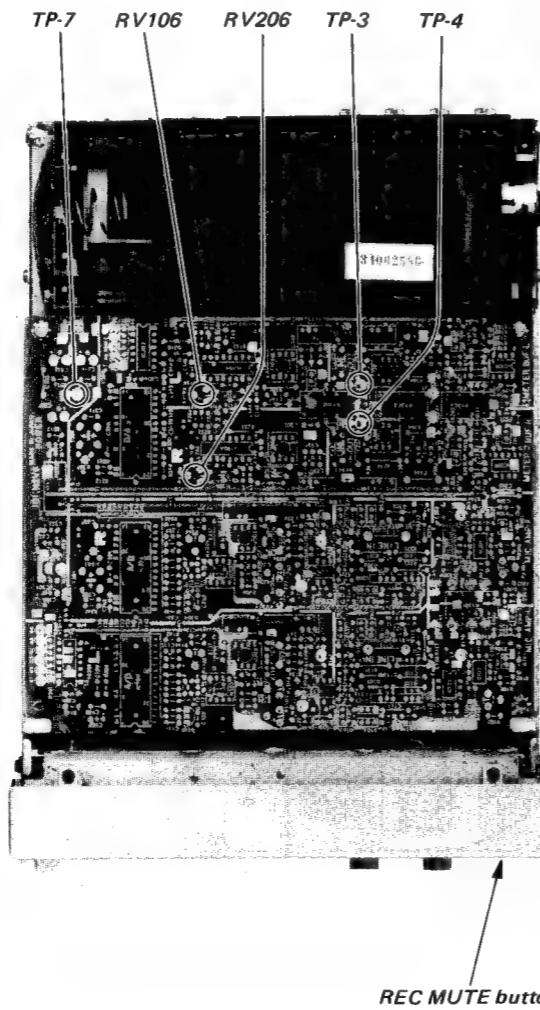
Adjustment Location :
- DIGITAL board -

D/A OFFSET ADJUSTMENT

Procedure :

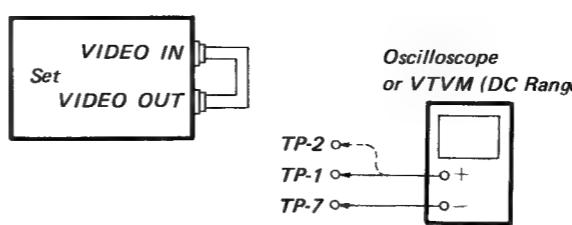


1. Connect VIDEO-IN and VIDEO-OUT terminals (E-E MODE).
2. Connect the oscilloscope or VTVM (DC Range) to the test point TP-3 (L-CH)/TP-4 (R-CH) and TP-7 (ground point).
3. Adjust RV106 (L-CH)/RV206 (R-CH) with pressing the REC MUTE button for 0 ± 10 mV (DC) reading on oscilloscope or VTVM.

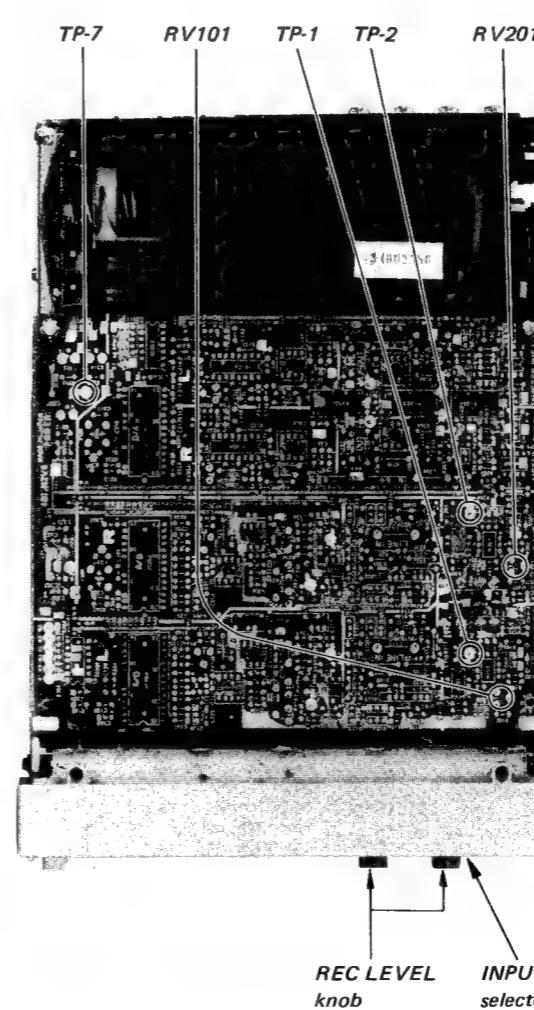
Adjustment Location :
- ANALOG board -

MIC AMP OFFSET ADJUSTMENT

Procedure :



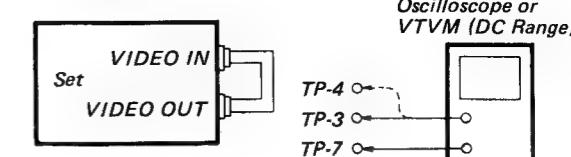
1. Connect the oscilloscope or VTVM (DC Range) to the test point TP-1 (L-CH)/TP-2 (R-CH) and TP-7 (ground point).
2. Turn the INPUT selector to MIC and the REC LEVEL knobs to the minimum (0).
3. Adjust RV101 (L-CH) / RV201 (R-CH) for 0 ± 50 mV (DC) reading on oscilloscope or VTVM.

Adjustment Location :
- ANALOG board -

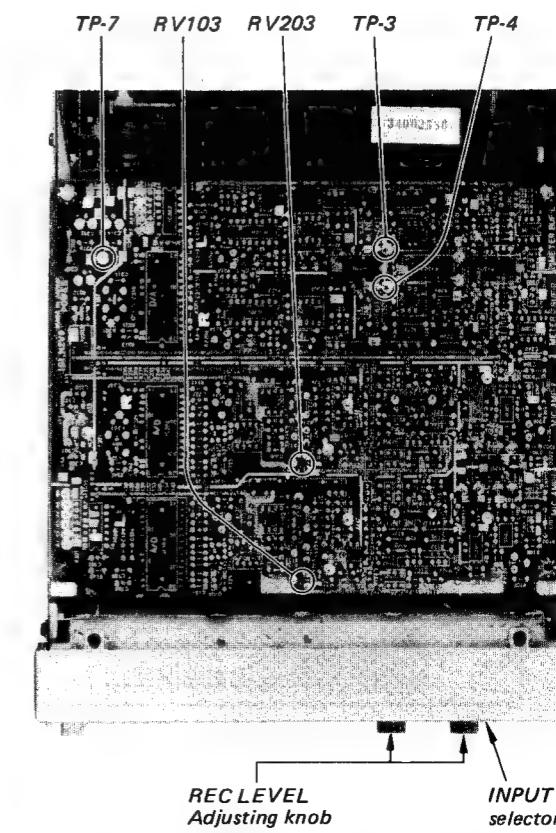
A/D OFFSET ADJUSTMENT

A/D OFFSET ADJUSTMENT should be made later than that of D/A OFFSET

Procedure:

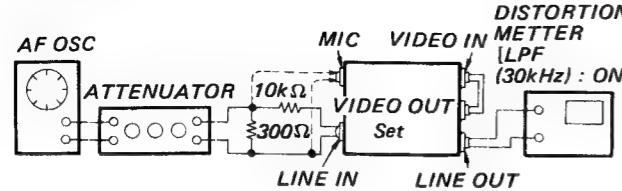


1. Connect VIDEO-IN and VIDEO-OUT TERMINALS (E-E MODE).
2. Connect the oscilloscope or VTVM (DC Range) to the test point TP-3 (L-CH), TP-4 (R-CH), and TP-7 (ground point).
3. Turn the INPUT selector to the LINE and the REC LEVEL knobs to the minimum (0).
4. Adjust RV103(L-CH)/RV203(R-CH) for 0 ± 10 mV (DC) reading on oscilloscope or VTVM.

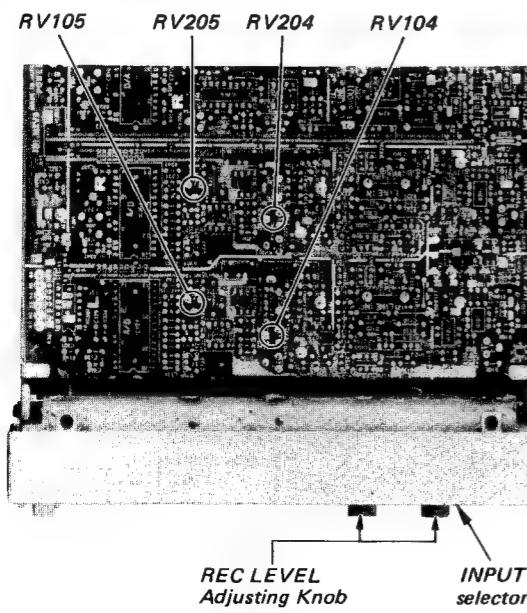
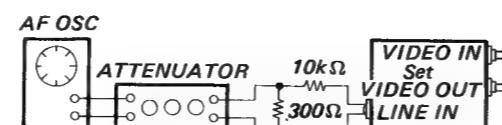
Adjustment Location:
- ANALOG board -

A/D DISTORTION ADJUSTMENT

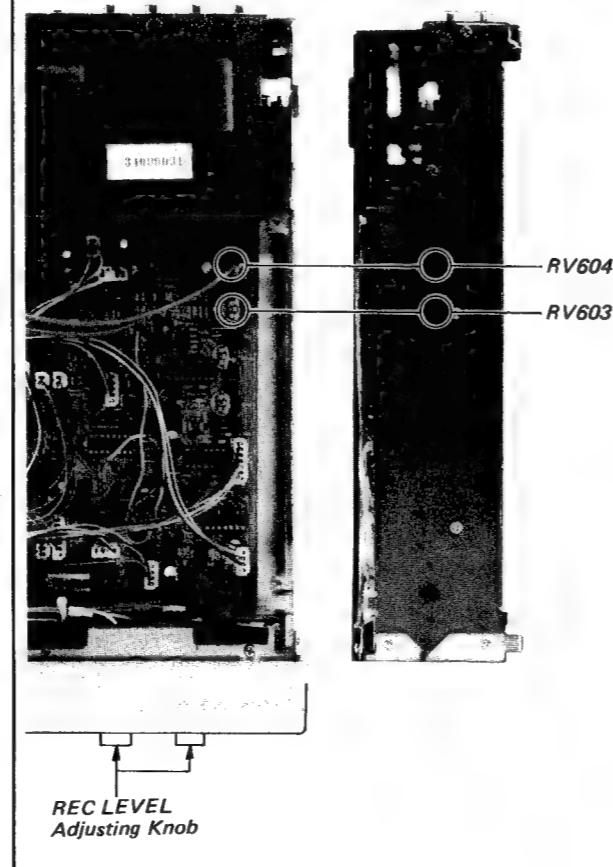
The low distortion AF OSC and the low distortion measurement equipment are needed to make this adjustment.

Procedure:

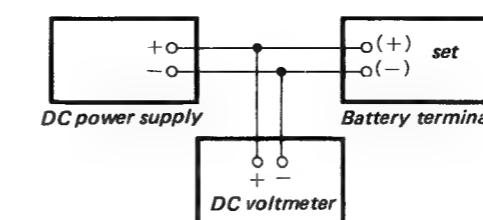
1. Connect VIDEO-IN and VIDEO-OUT terminals (E-E mode).
2. Apply a 1 kHz, 0 dB (0.775V) to the LINE IN terminals.
3. Adjust the REC LEVEL knobs so that OVER of the LED peak program meters just light up.
4. Decrease the input signal level from 0.5 to 1 dB with the attenuator, and confirm OVER of that goes out.
5. Adjust RV104, 105(L-CH)/RV204, 205(R-CH) for minimum reading on distortion meter.
6. And then apply a 1 kHz, -20dB (0.775V) to the MIC terminals.
7. Confirm the distortion similarly.
- reference data
distortion LINE IN less than -84dB
MIC less than -80dB

Adjustment Location:
- ANALOG board -**PEAK METER ADJUSTMENT****Procedure:**

1. Connect VIDEO IN and VIDEO OUT terminals (E-E mode).
2. Apply a 1 kHz, 0 dB (0.775V) to the LINE IN terminals.
3. Adjust the REC LEVEL knobs so that OVER of the LED peak program meters just light up.
4. Decrease the input signal level from 0.5 to 1 dB with the attenuator, and confirm OVER of that goes out.
5. Adjust RV604(L-CH)/RV603(R-CH) so that the LED peak program meters just illuminate 0dB.

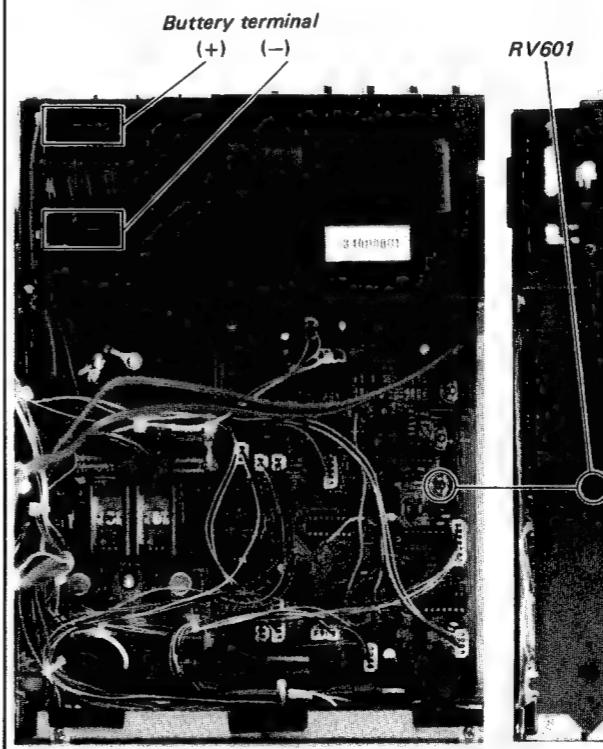
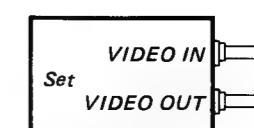
Adjustment Location:
- POWER SUPPLY board -**BATT LEVEL ADJUSTMENT**

Remove the AC power adapter during this adjustment.

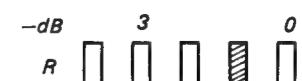
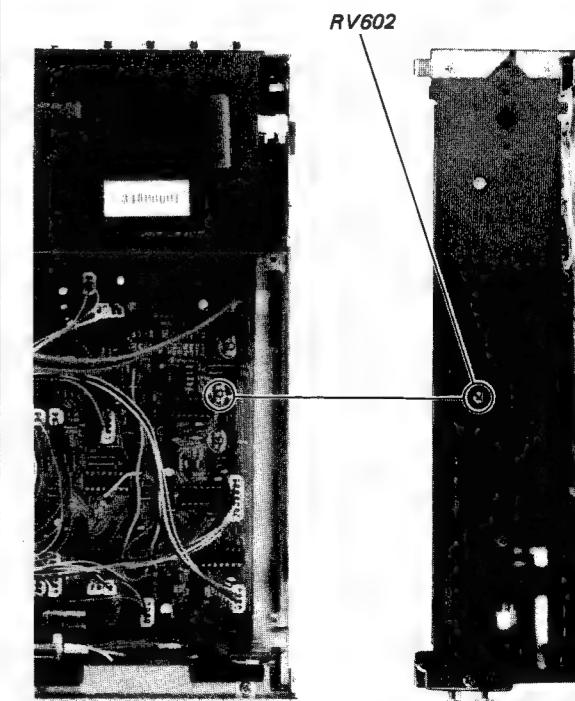
Procedure:

1. Adjust the output voltage of the DC power supply to 11 ± 0.1 V and connect to the battery terminals of the set.
2. Turn the POWER switch to on and press the BATT CHECK button.
3. Confirm the LED peak program meter illuminates only R-CH.
4. Adjust RV601 with pressing the BATT CHECK button so that the LED meter illuminates shown as below.

BATT CHECK E ● ● ●

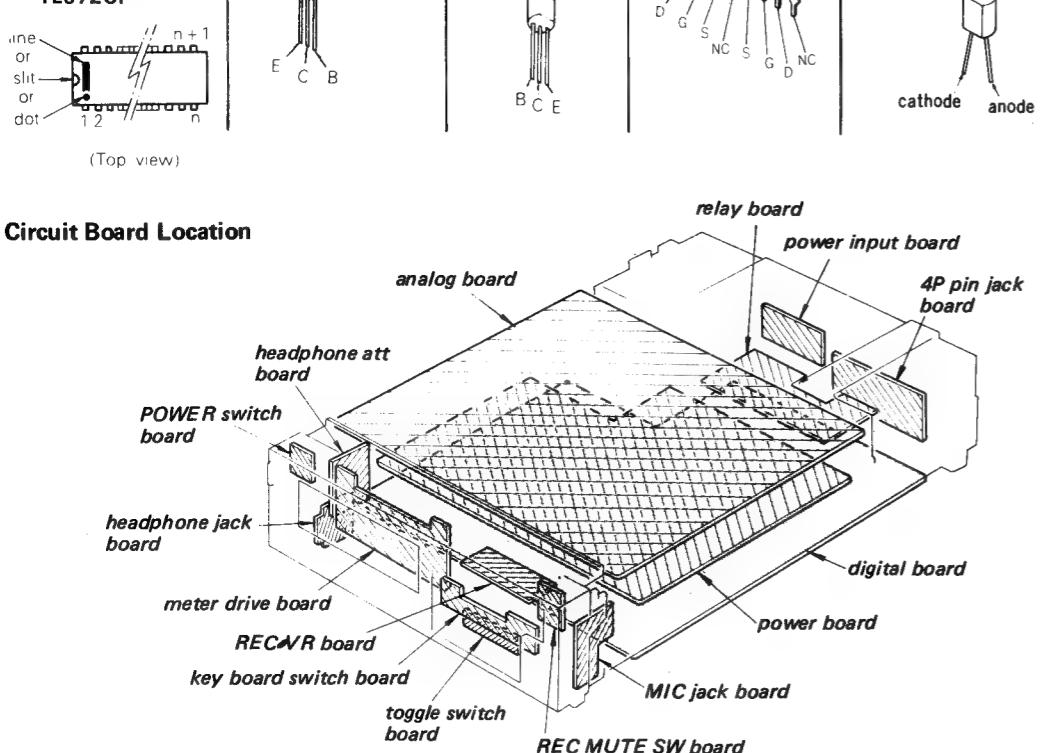
**Adjustment Location:**
- POWER SUPPLY board -**TRACKING LEVEL ADJUSTMENT****Procedure:**

1. Connect VIDEO IN and VIDEO OUT terminal (E-E mode).
2. Press the METER selector button.
3. Confirm the TRACKING indicator illuminates and the LED peak program meter illuminates only R-CH.
4. Adjust RV602 so that the LED meter illuminates shown as below.

**Adjustment Location:**
- POWER SUPPLY board -

SECTION 4 DIAGRAMS

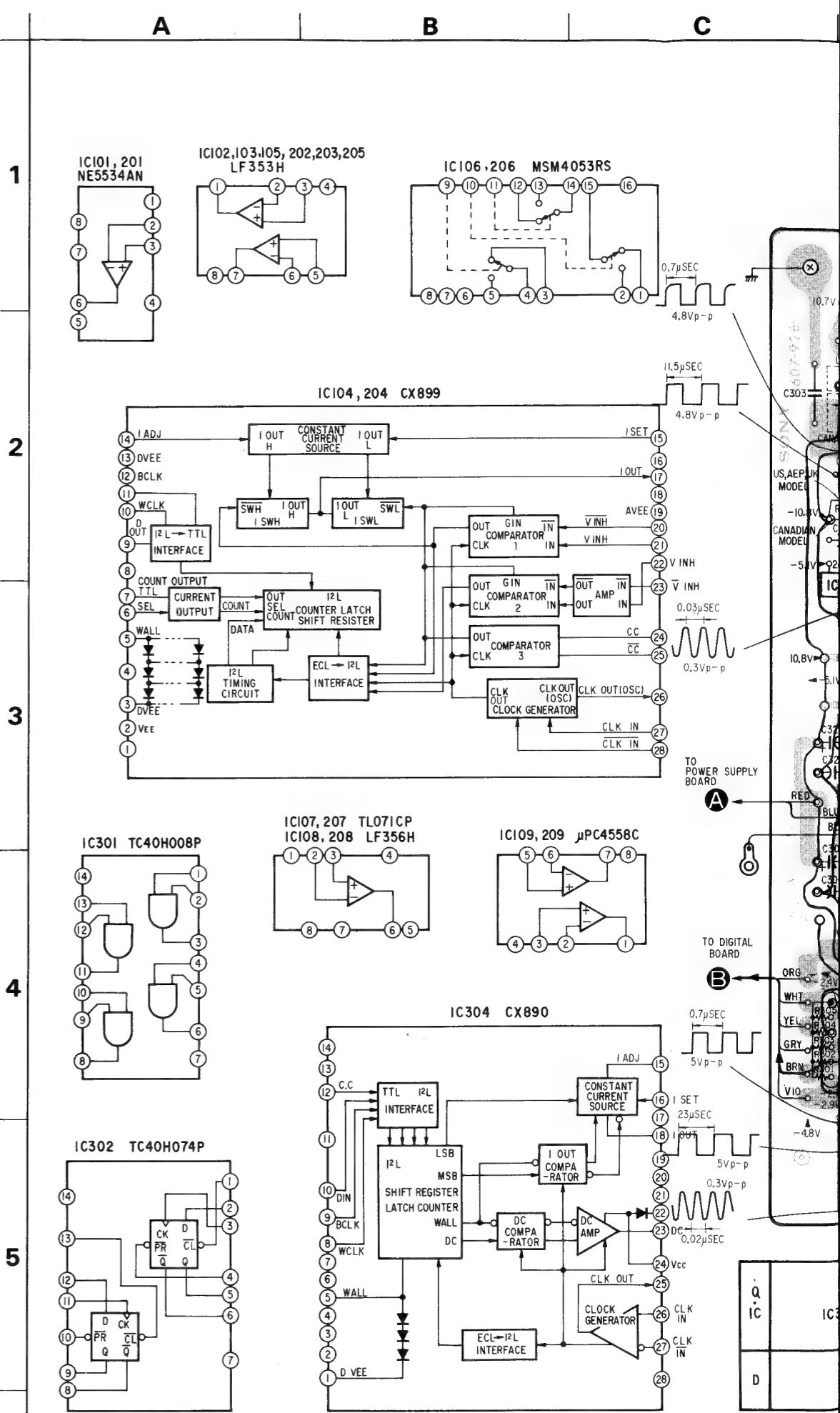
Semiconductor Lead Layouts



-25-

-1. MOUNTING DIAGRAM

—Conductor Side—



C

D

E

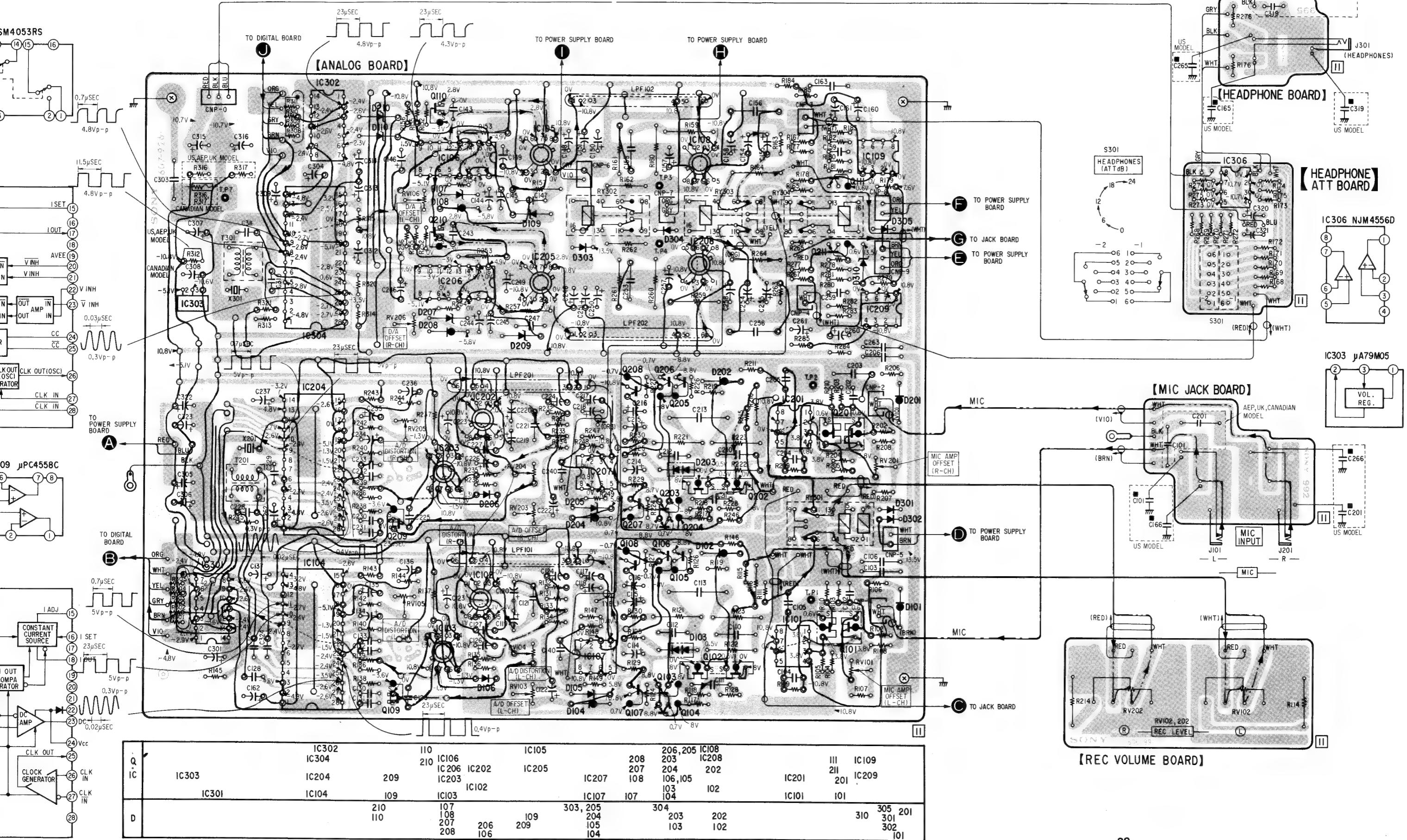
F

G

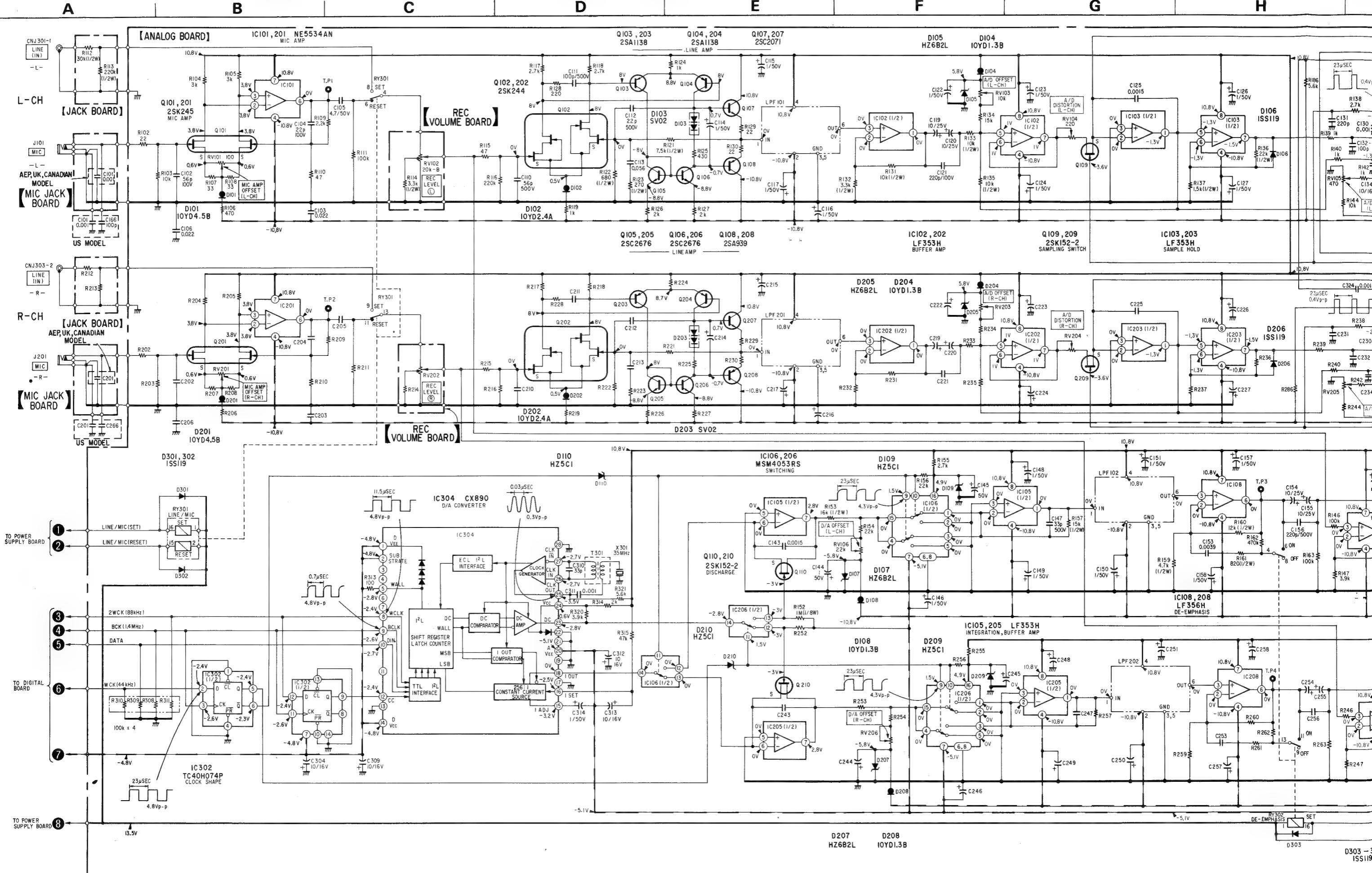
H

I

J



4-2. SCHEMATIC DIAGRAM



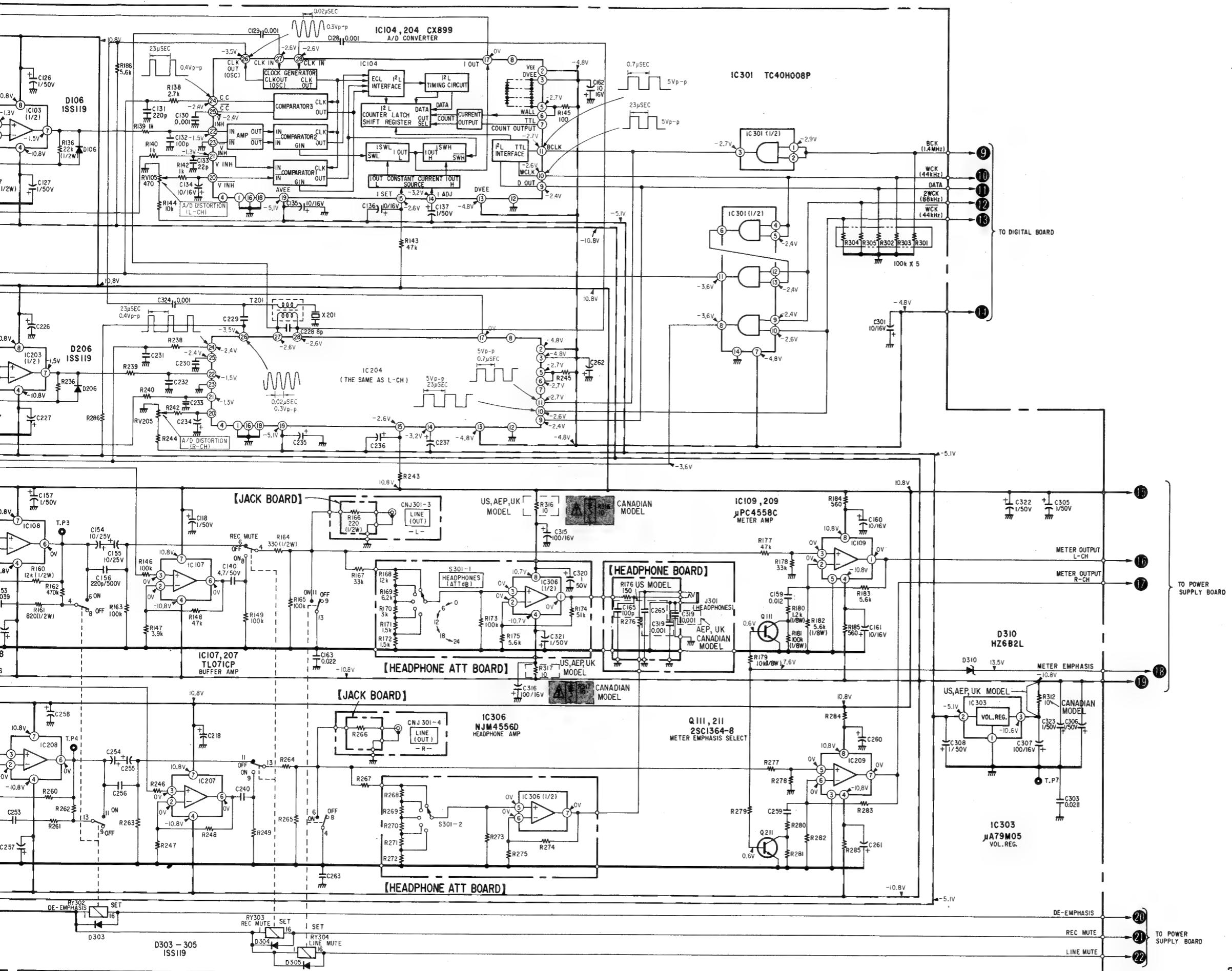
H

J

K

L

M



Note:

- Switch, relay

Ref. No.	Switch	Position
S301	HEADPHONES ATTdB	0
S601	MUTING	OFF
S602	COPY	OFF
S603	INPUT	MIC
S604	METER	OFF
S605	PEAK HOLD	OFF
S606	RESET/AUTO	OFF
S607	PEAK HOLD	OFF
S608	RESET/MANUAL	OFF
S609	BATT CHECK	OFF
S600	REC MUTE	OFF
RY301	POWER	OFF
RY302	RES	14BIT
RY303	LINE/MIC	MIC
RY304	De-emphasis	OFF
RY305	REC MUTE	OFF
RY306	Line mute	OFF
RY601	AC/DC	AC
RY602	POWER	ON
RY603	Charge	ON

• : panel designation.

• All resistors are in ohms, $\frac{1}{2}W$ unless otherwise noted.
 $k\Omega$: 1000Ω , $M\Omega$: $1000k\Omega$ • All capacitors are in μF unless otherwise noted. pF : $\mu\mu F$
 $50WV$ or less are not indicated except for electrolytics and tantalums.

• : fusible resistor.

• : adjustment for repair.

• : B+ bus.

• : B- bus.

• Voltages are dc with respect to ground unless otherwise noted.

• Readings are taken under E-E mode, no-signal conditions with a VOM (50 $k\Omega/V$).

• Voltage/waveforms are measured with a wide-band oscilloscope.

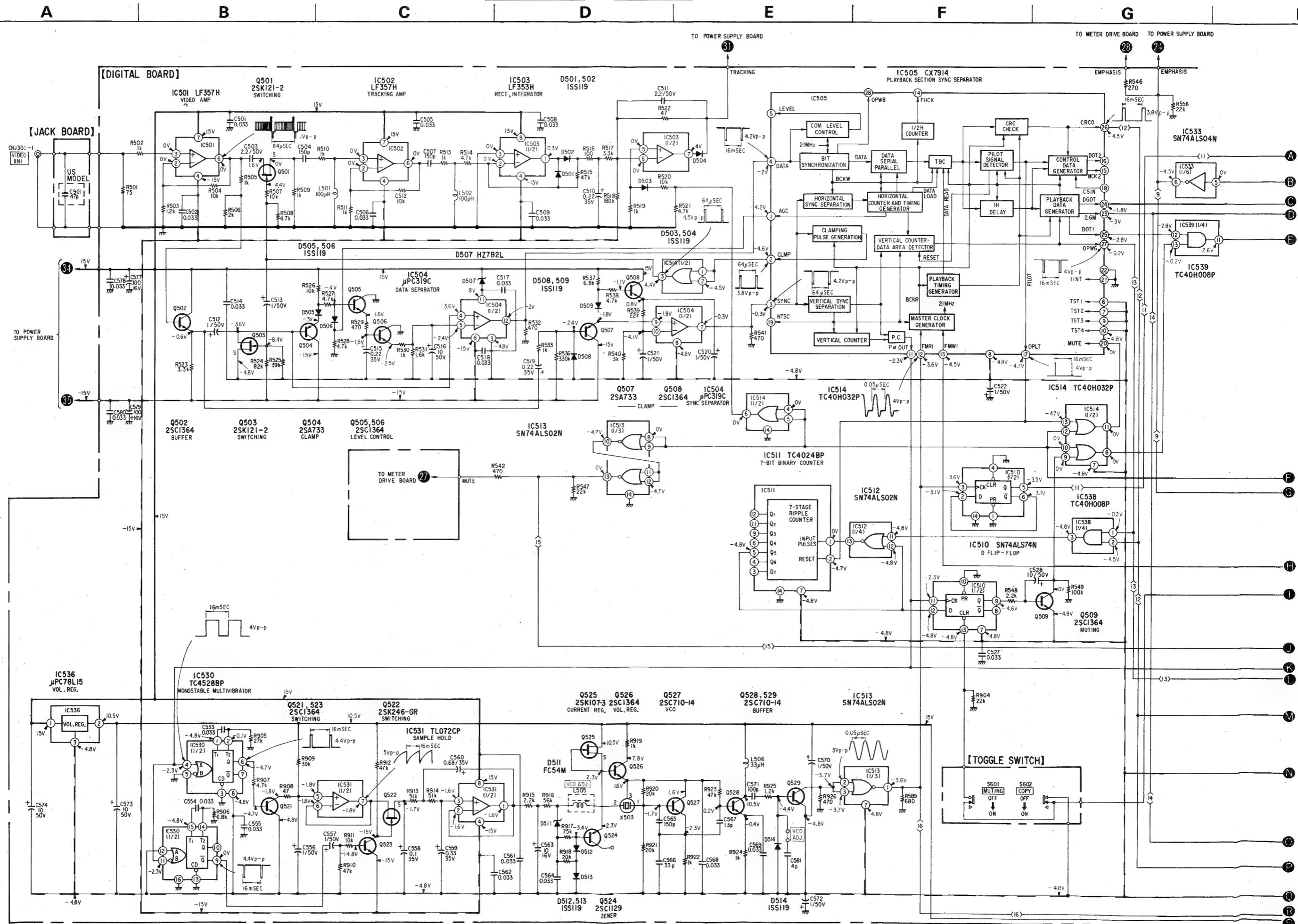
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

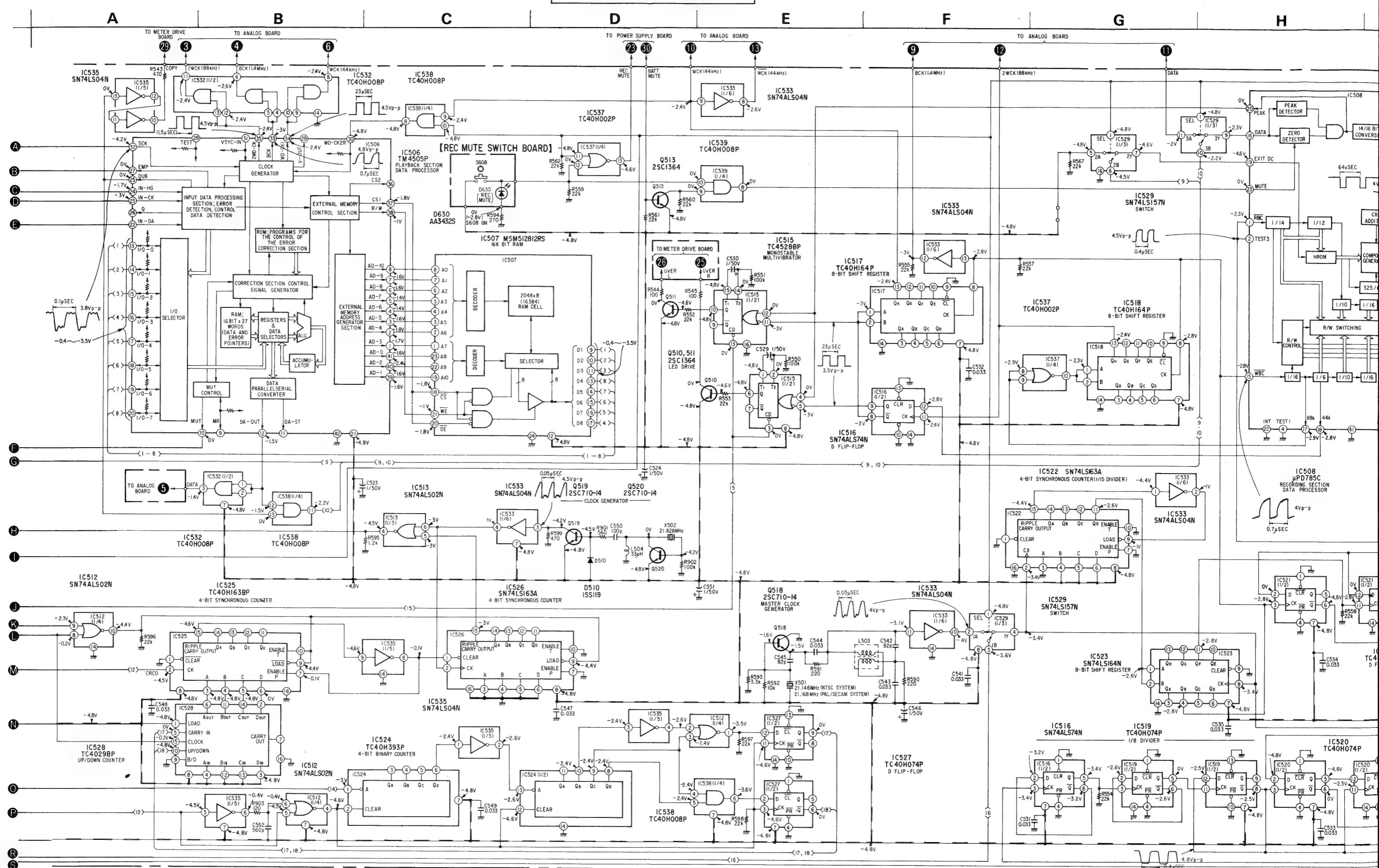
2-4. SCHEMATIC DIAGRAM

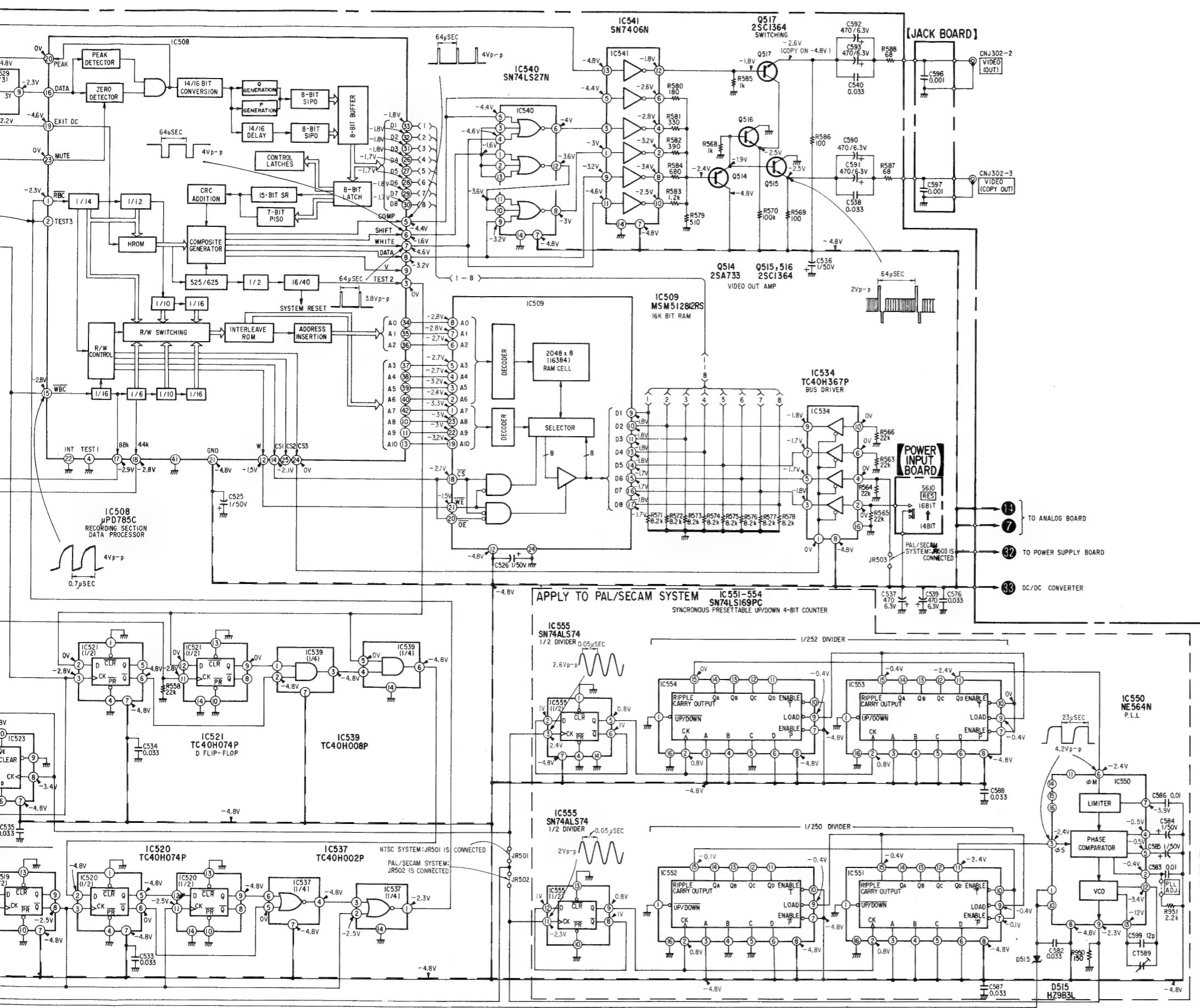
Semiconductor Lead Layouts: See Page 25.
Circuit Board Location: See page 25.

PCM-F1 **PCM-F1**

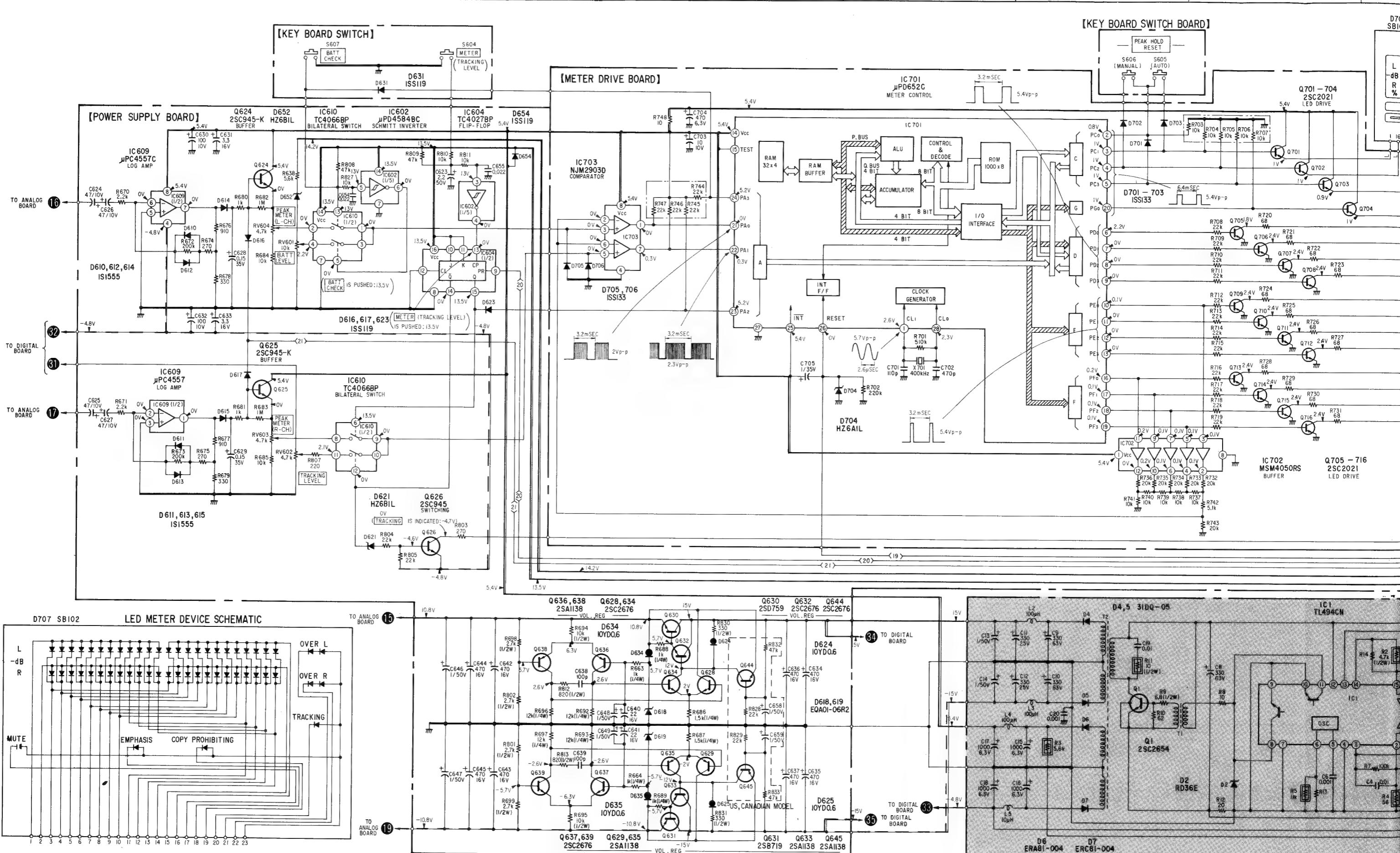


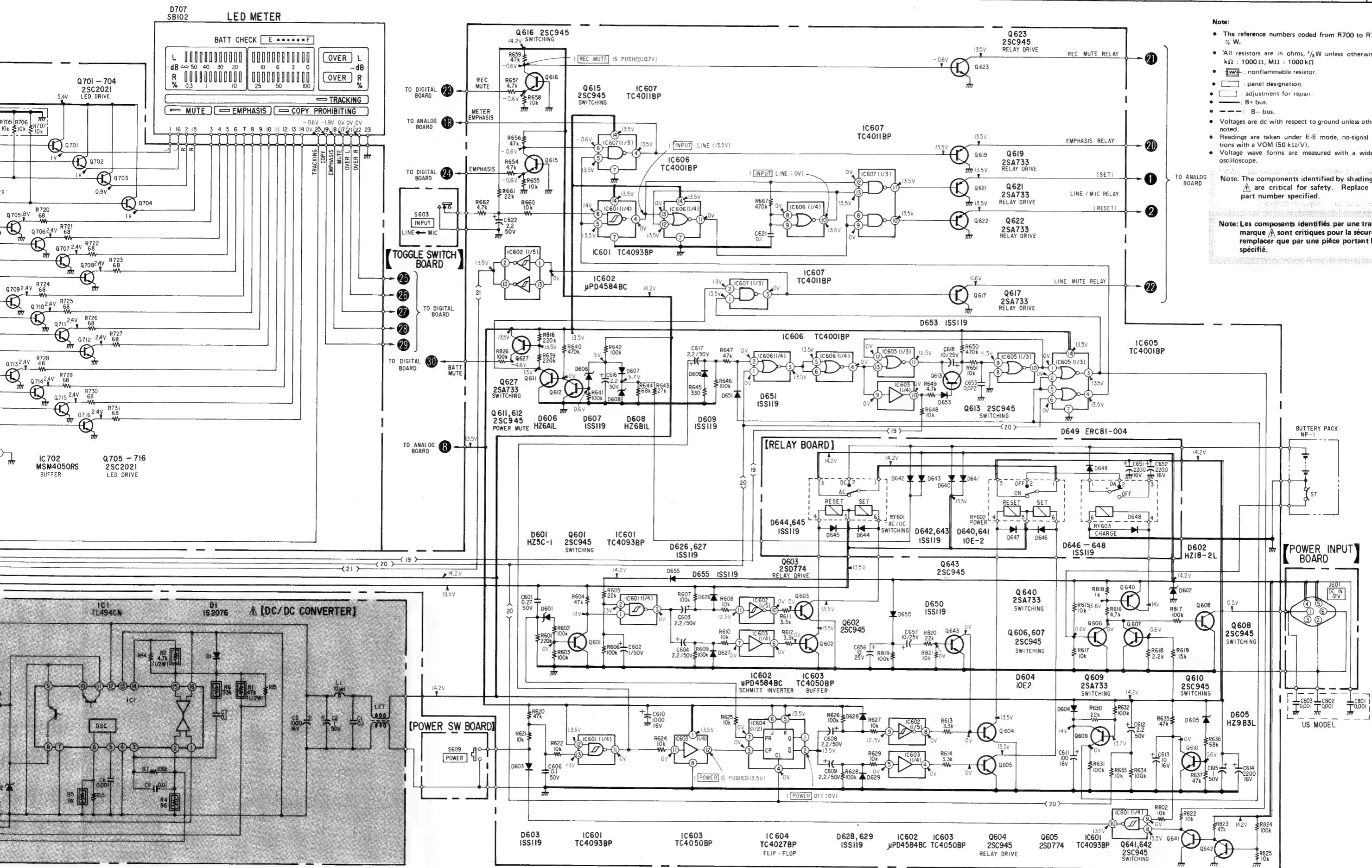
PCM-F1 **PCM-F1**





- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{8}\text{W}$ unless otherwise noted.
 $\text{k}\Omega$: 1000Ω , $\text{M}\Omega$: $1000\text{k}\Omega$
-  : panel designation.
-  : adjustment for repair.
-  : B+ bus.
-  : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under E-E mode, no-signal conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
- Voltage/waveforms are measured with a wide-band oscilloscope.

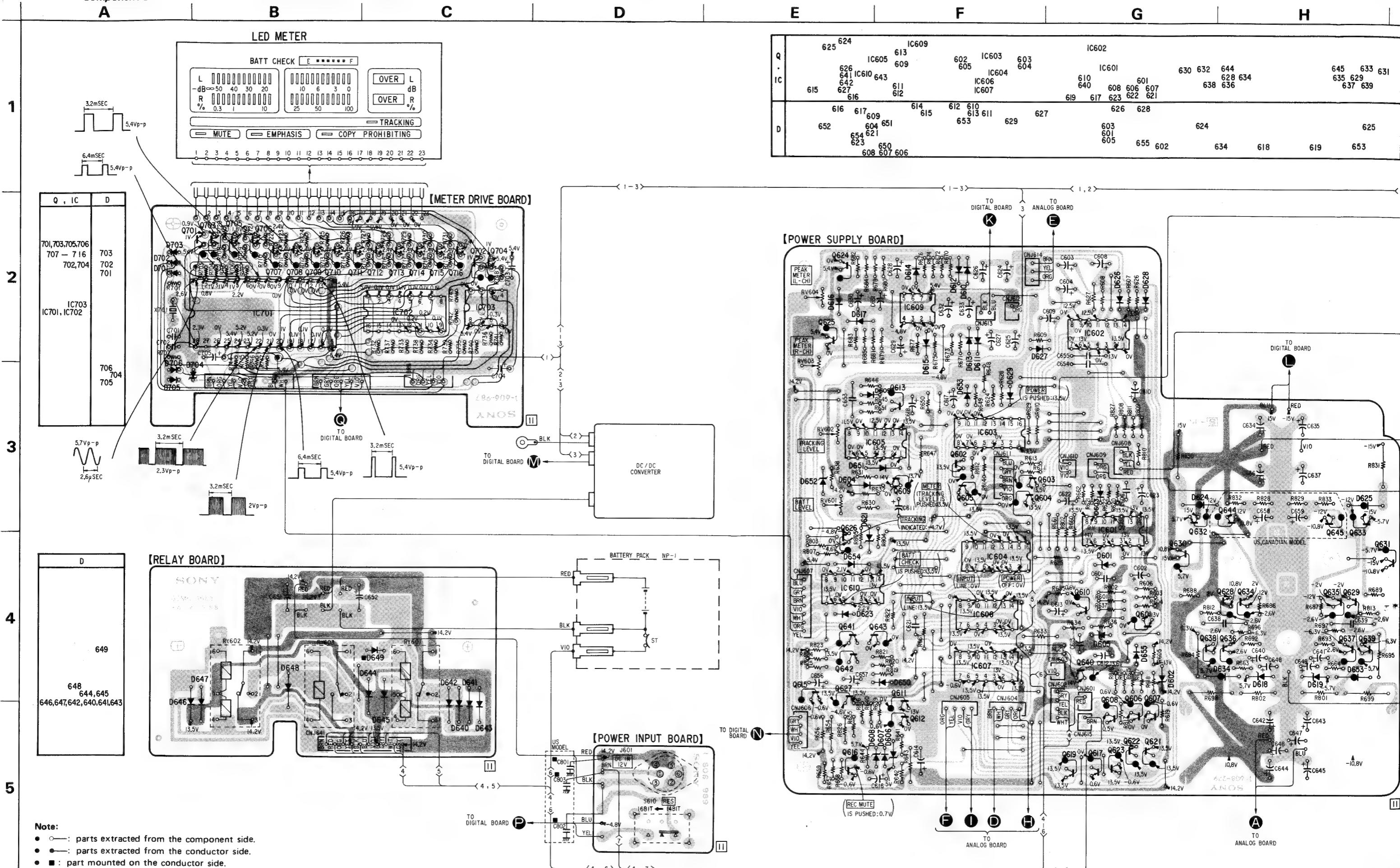




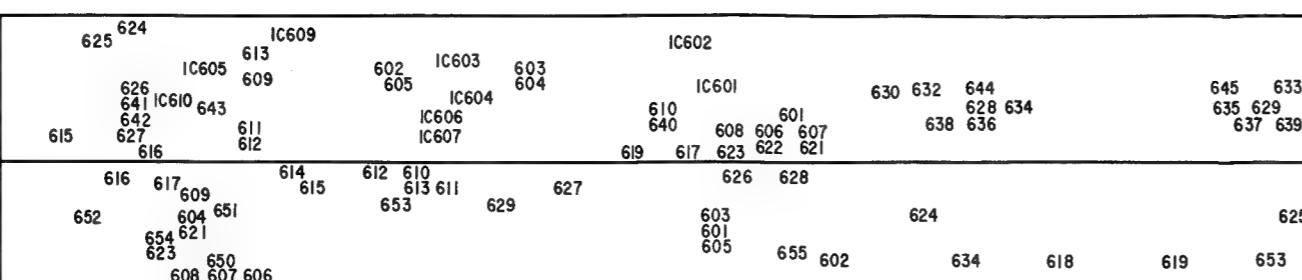
4-6. MOUNTING DIAGRAM
—Component Side—

Semiconductor Lead Layouts: See Page 25.
Circuit Board Location: See page 25.

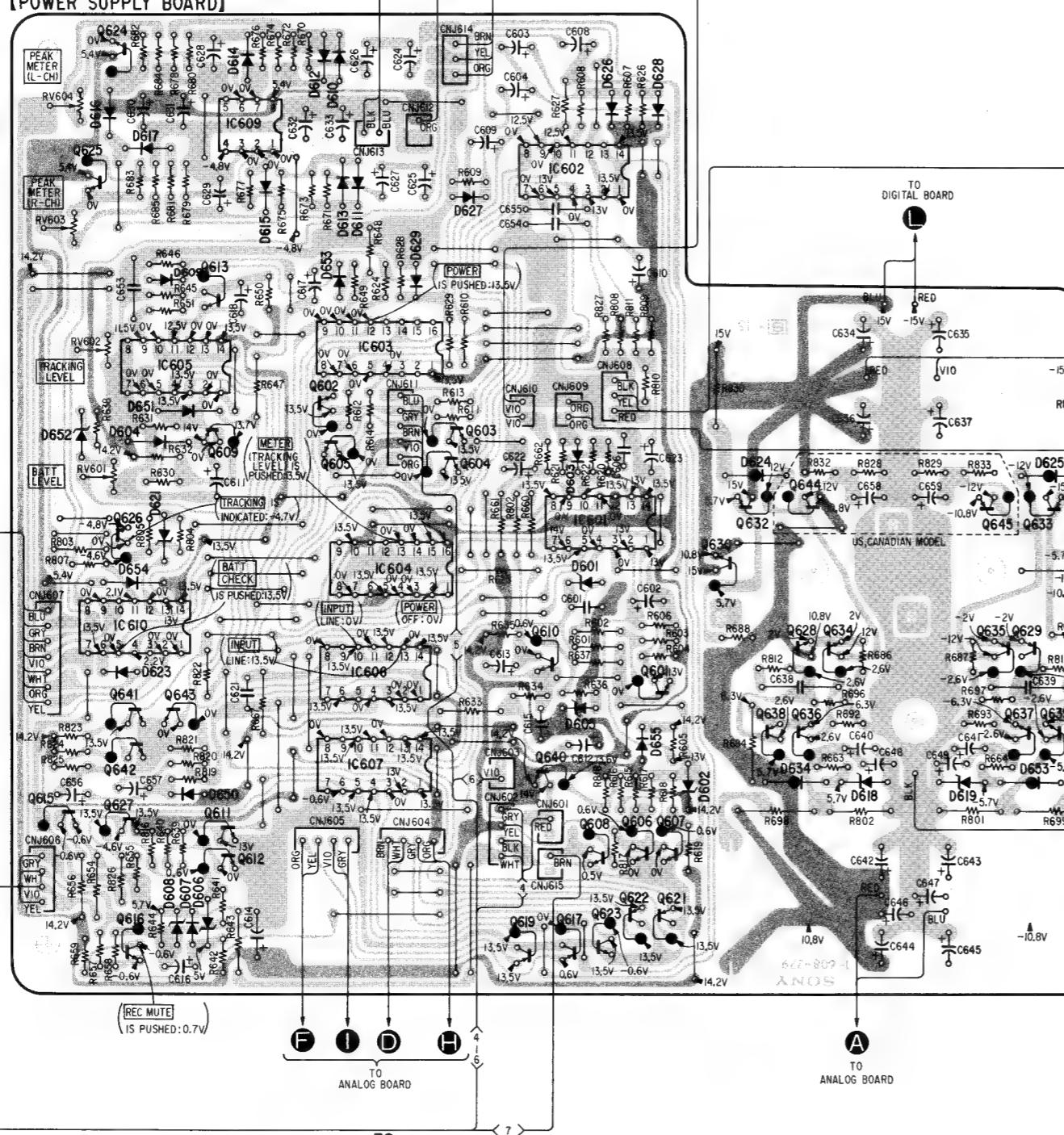
PCM-F1 PCM-F1



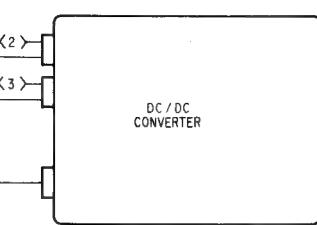
D



[POWER SUPPLY BOARD]

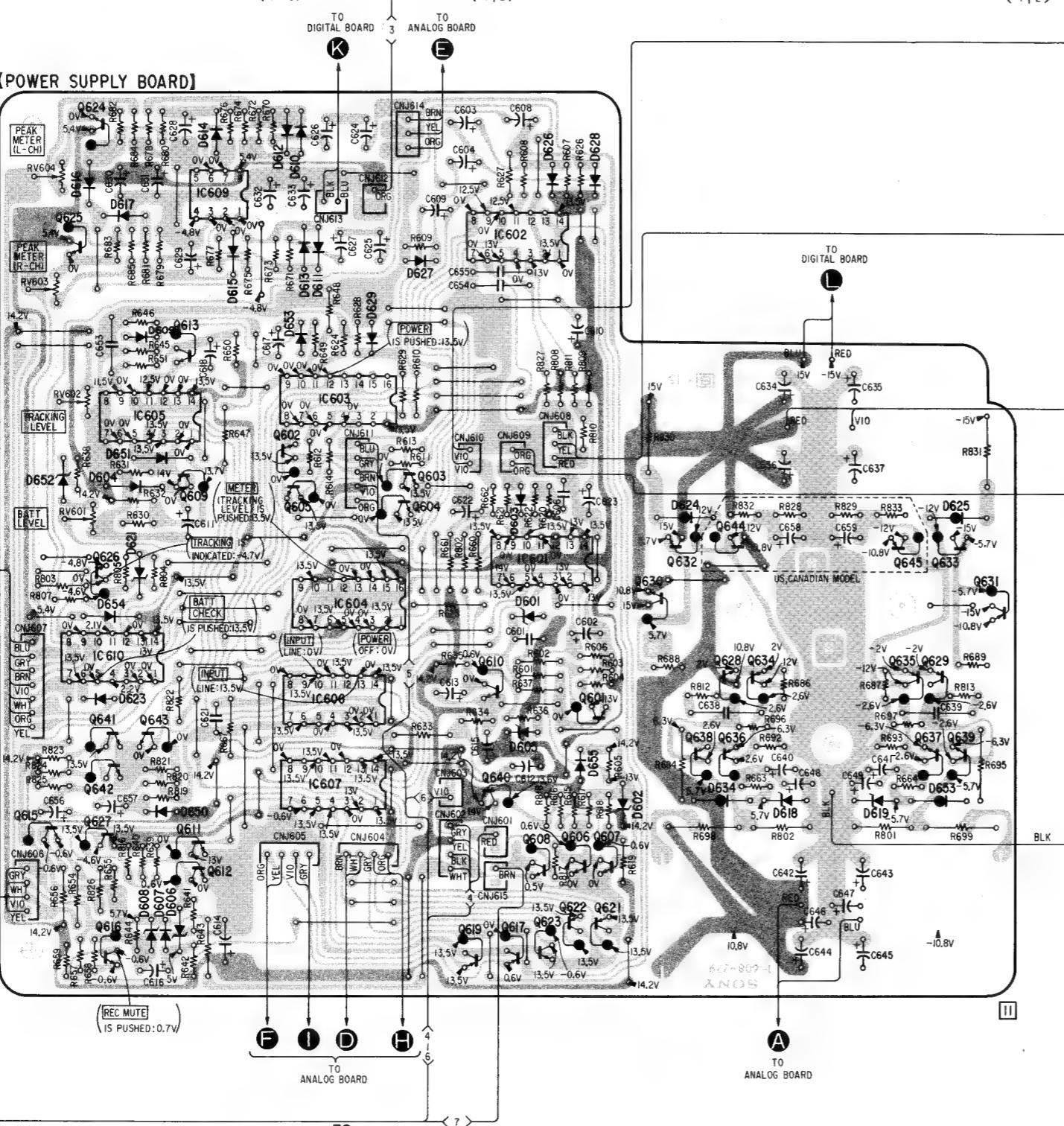


[POWER INPUT BOARD]



[POWER INPUT BOARD]

[POWER INPUT BOARD]



E

F

G

H

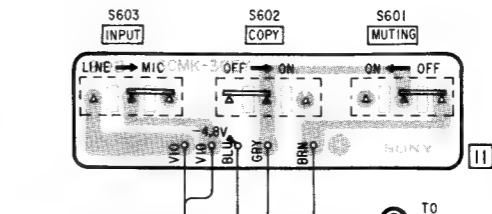
I

J

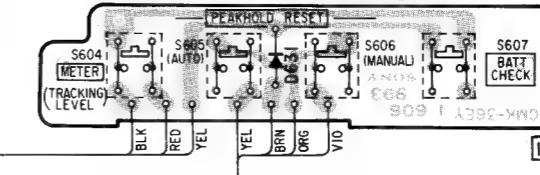
K

L

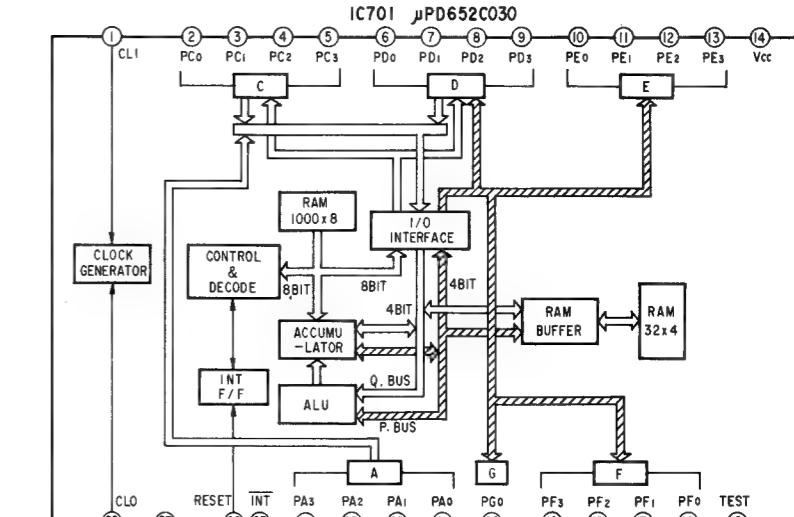
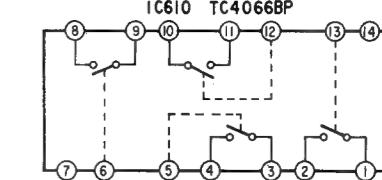
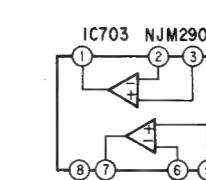
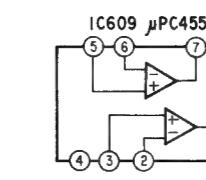
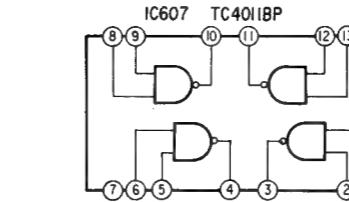
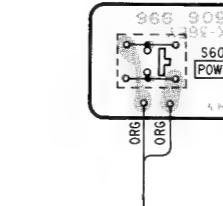
[TOGGLE SWITCH BOARD]



[KEY BOARD SWITCH BOARD]

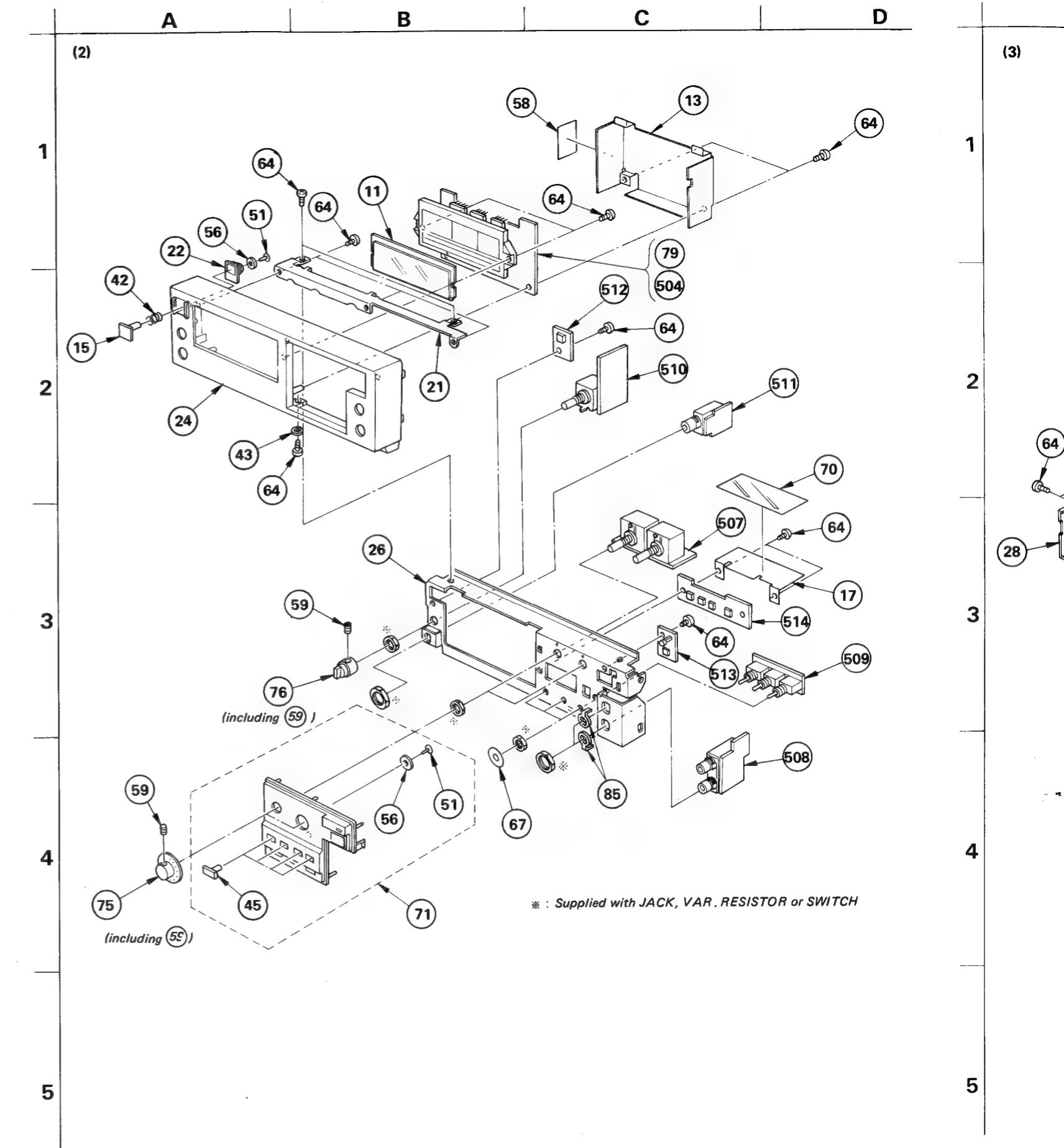
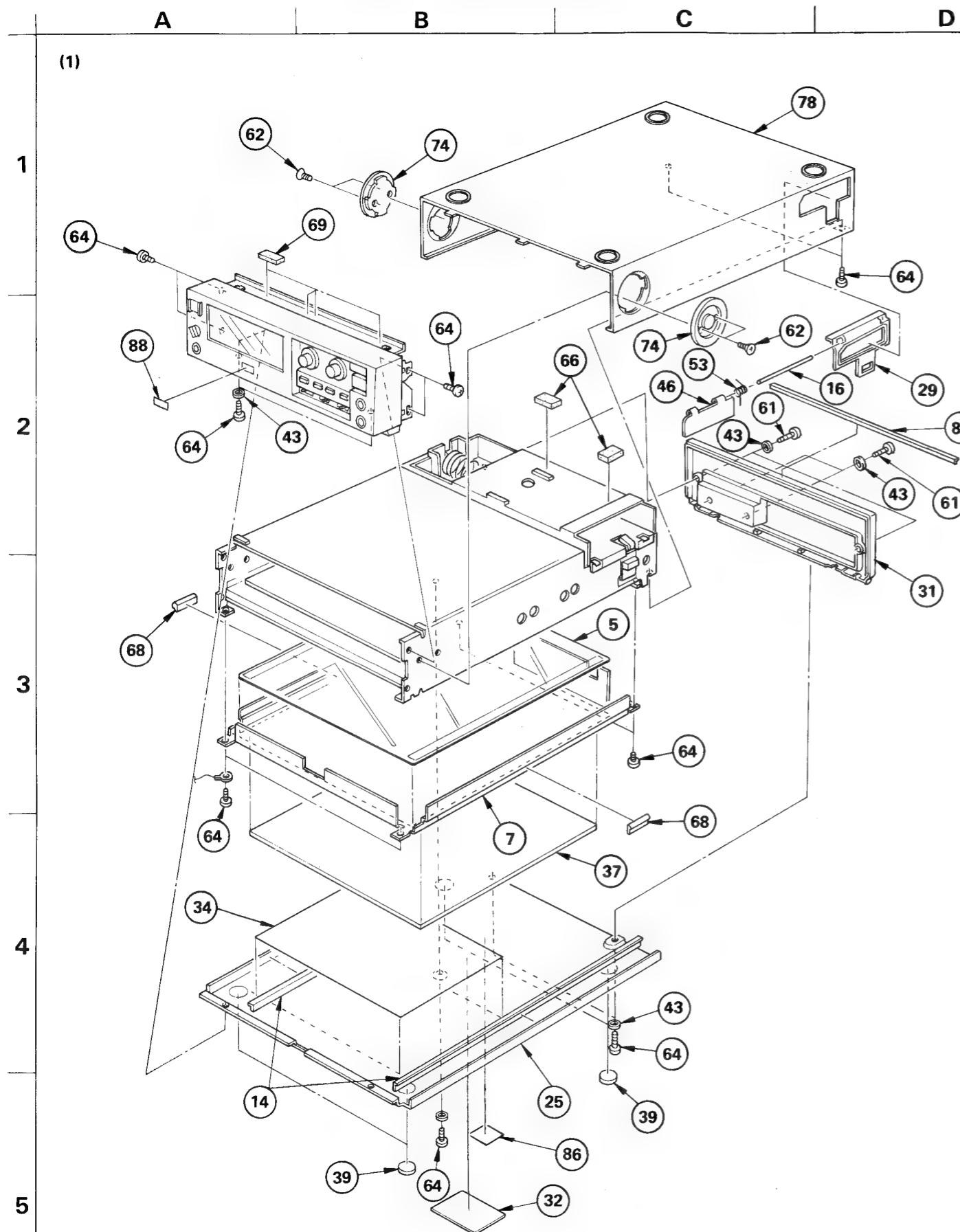


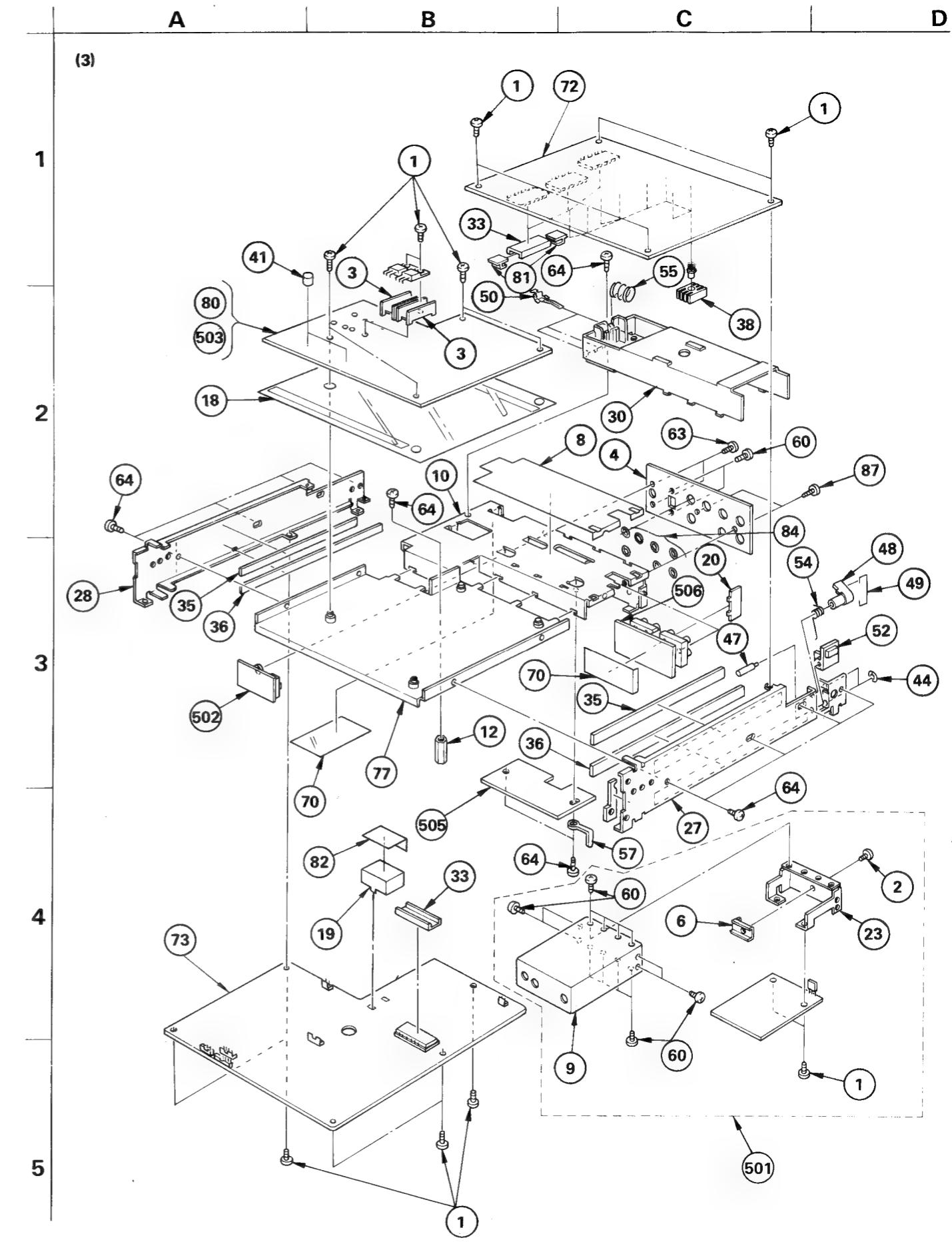
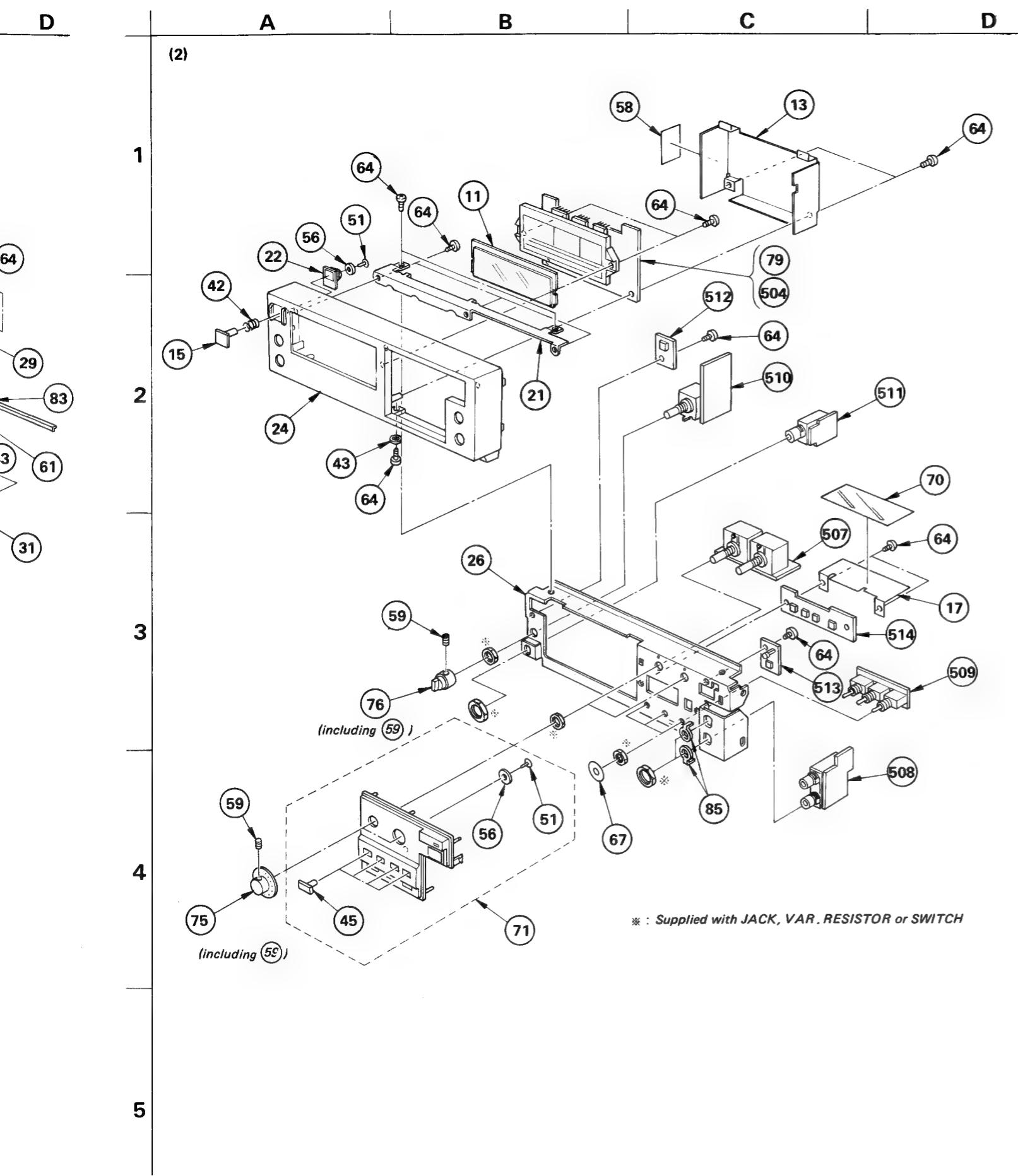
[POWER SW BOARD]



SECTION 5

EXPLODED VIEWS AND PARTS LIST





GENERAL SECTION

No.	Part No.	Description
1	2-259-121-00	SCREW, TR
2	2-259-121-21	SCREW, TR
3	2-362-302-00	HEAT SINK, HORIZONTAL, TO-126
4	2-362-303-02	PLATE, JACK
5	2-362-305-00	INSULATOR, SHIELD PLATE, LOWER
6	2-362-308-00	CLAMP, TRANSISTOR
7	2-362-309-00	PLATE (LOWER), SHIELD
8	2-362-310-00	SHEET, BATTERY
9	2-362-311-00	CASE, PLPS
10	2-362-312-00	CHASSIS, REAR
11	2-362-315-00	WINDOW, METER
12	2-362-318-00	SUPPORT, BOTTOM PLATE
13	2-362-319-00	PLATE, SHIELD, METER
14	2-362-320-00	(Canadian, AEP, UK)...CUSHION, BOTTOM PLATE
14	2-362-320-11	(US)...CUSHION, BOTTOM PLATE
15	2-362-321-00	BUTTON, POWER
16	2-362-324-00	SHAFT, BATTERY LID
17	2-362-326-00	PLATE, SHIELD, REC CONTROL
18	2-362-327-00	INSULATOR, SHIELD PLATE, CENTER
19	2-362-376-00	CASE (2), SHIELD, VCO
20	2-362-331-00	PLATE, SHIELD, JACK
21	2-362-334-00	BRACKET, PANEL
22	2-362-335-00	ESCUTCHEON, POWER SWITCH
23	2-362-336-00	PLATE
24	2-362-337-11	(PAL/SECAM)...PANEL, FRONT
24	2-362-337-00	(NTSC)...PANEL, FRONT
25	2-362-339-00	(Canadian, AEP, UK)...PLATE, BOTTOM
25	2-362-339-11	(US)...PLATE, BOTTOM
26	2-362-340-00	CHASSIS, AMPLIFIER
27	2-362-341-00	PLATE (RIGHT), SIDE
28	2-362-342-00	PLATE (LEFT), SIDE
29	2-362-344-00	ESCUTCHEON, BATTERY
30	2-362-345-00	HOLDER, BATTERY
31	2-362-347-00	(Canadian, AEP, UK)...PANEL, REAR
31	2-362-347-11	(US)...PANEL, REAR
32	2-362-373-00	LABEL, MODEL NUMBER (US, AEP)
33	2-362-355-00	HEAT SINK, IC
34	2-362-358-11	MANUAL, INSTRUCTION
35	2-362-359-00	PLATE, VIBRATION CONTROL
36	2-362-360-00	PLATE, VIBRATION CONTROL
37	2-362-362-00	PLATE, VIBRATION CONTROL
38	2-362-364-00	HEAT SINK, OPERATION AMPLIFIER
38	2-362-364-11	HEAT SINK, OPERATION AMPLIFIER (for IC103)
39	2-362-365-00	FOOT, RUBBER
40	2-362-370-01	INSULATOR, MICROPHONE JACK

GENERAL SECTION

No.	Part No.	Description
41	2-362-372-00	CAP (CK)
42	3-434-052-00	SPRING, COMPRESSION
43	3-558-708-21	WASHER, STOPPER
44	3-570-615-00	POLY-WASHER (DIA.1.2)
45	3-669-492-00	BUTTON (A), F
46	3-669-517-11	(US, Canadian)...LID, BATTERY CASE
46	3-669-517-41	(AEP, UK)...LID, BATTERY CASE
47	3-669-523-00	SHAFT (C)
48	3-669-524-00	CLAW
49	3-669-525-00	LEVER (B)
50	3-669-526-00	TERMINAL
51	3-669-528-00	CAP, BUTTON
52	3-669-574-00	KNOB (B)
53	3-669-592-00	SPRING (A), TORSION
54	3-669-593-00	SPRING (B), TORSION
55	3-669-594-00	SPRING, COMPRESSION
56	3-701-437-11	WASHER
57	3-701-822-00	HOLDER, WIRE
58	4-866-646-00	INSULATOR (B)
59	7-621-734-09	SET-SCT, HEX. 2.6X3
60	7-621-775-10	SCREW +B 2.6X4
61	7-682-147-09	SCREW +P 3X6
62	7-682-245-04	SCREW +K 3X4
63	7-685-546-19	SCREW +BTP 3X8 TYPE2 N-S
64	7-685-751-01	SCREW +PTT 3X6 (S)
65	7-685-752-09	SCREW +PTT 3X8 (S)
66	9-911-815-02	CUSHION, CIRCUIT BREAKER
67	9-911-838-XX	ESCUTCHEON, TOGGLE SWITCH
68	9-911-845-XX	DAMPER (B), CAPSULE
69	9-911-851-XX	CUSHION
70	9-911-863-XX	INSULATOR, SHIELD PLATE, CONTROL
71	A-4322-415-A	PANEL ASSY, FRONT, SUB
72	A-4334-004-A	MOUNTED PCB, ANALOG
73	A-4335-237-A	MOUNTED PCB, DIGITAL
74	X-2362-302-0	RING ASSY, HANDLE
75	X-2362-303-0	KNOB ASSY, REC
76	X-2362-304-0	KNOB ASSY, HEADPHONE
77	X-2362-305-0	PLATE ASSY, SHIELD, CENTER
78	X-2362-307-1	CASE, UPPER
79	A-4380-038-A	MOUNTED PCB, DRIVE, METER
80	A-4394-278-A	MOUNTED PCB, POWER
81	2-362-371-00	CLIP, IC
82	2-362-374-00	INSULATOR, VCO
83	2-362-375-00	CUSHION, REAR PANEL

GENERAL SECTION

No.	Part No.	Description
84	2-362-381-11	(US)...RING, SHORT
85	2-362-382-00	(US)...LUG, JUCK
86	2-362-383-00	(US)...LABEL, FCC APPROVAL
87	2-362-384-00	(US)...SCREW, +PTPWH 3X10
88	3-701-690-00	(UK)...LABEL (MADE IN JAPAN)

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	A-1-463-428-00	(AEP)...ADAPTOR, AC (AC-700)
101	A-1-463-429-00	(US)...ADAPTOR, AC (AC-700)
101	A-1-463-430-00	(UK)...ADAPTOR, AC (AC-700)
101	A-1-463-439-00	(Canadian)...ADAPTOR, AC (AC-700)

No.	Part No.	Description
102	1-551-315-00	CORD, CONNECTION
103	1-556-254-00	CORD, CONNECTION
104	1-551-086-31	(US, Canadian)...CORD, CONNECTION
104	1-556-464-00	(AEP, UK)...CORD, CONNECTION
105	2-362-351-00	CUSHION, LOWER
106	2-362-352-00	CUSHION, UPPER
107	2-362-380-00	INDIVIDUAL CARTON
108	3-701-626-00	BAG, POLYETHYLENE
109	3-701-630-00	BAG, POLYETHYLENE
110	3-701-632-00	BAG, POLYETHYLENE
111	3-783-877-11	(AEP, UK)...MANUAL, INSTRUCTION
111	3-783-877-21	(US, Canadian)...MANUAL, INSTRUCTION
111	3-783-877-31	(Canadian)...MANUAL, INSTRUCTION
111	3-783-877-41	(AEP)...MANUAL, INSTRUCTION
112	4-825-727-00	SHIRT, PROTECTION
113	X-3669-375-0	STRAP ASSY (A)

No.	Part No.	Description
C102	1-107-294-00	MICA
C104	1-107-284-00	MICA
C105	1-123-830-00	ELECT
C110	1-107-165-00	MICA
C111	1-107-309-00	MICA
C112	1-107-322-00	MICA
C113	1-130-922-00	FILM
C114	1-131-450-91	TANTALUM
C115	1-131-450-91	TANTALUM
C116	1-131-450-91	TANTALUM
C117	1-131-450-91	TANTALUM
C118	1-131-450-91	TANTALUM
C119	1-131-522-00	TANTALUM
C120	1-131-522-00	TANTALUM
C121	1-107-308-00	MICA
C122	1-131-450-91	TANTALUM
C123	1-131-450-91	TANTALUM
C124	1-131-450-91	TANTALUM
C125	1-104-230-00	POLYSTYRENE
C126	1-131-450-91	TANTALUM
C127	1-131-450-91	TANTALUM
C134	1-131-371-71	TANTALUM
C135	1-131-371-71	TANTALUM
C136	1-131-371-71	TANTALUM
C137	1-131-450-91	TANTALUM
C140	1-123-830-00	ELECT
C143	1-104-230-00	POLYSTYRENE

No.	Part No.	Description
C144	1-131-450-91	TANTALUM
C145	1-131-450-91	TANTALUM
C146	1-131-450-91	TANTALUM

NOTE:
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PCM-F1 PCM-F1

ELECTRICAL PARTS						ELECTRICAL PARTS						ELECTRICAL PARTS						ELECTRICAL PARTS					
Ref.No.	Part No.	Description			Ref.No.	Part No.	Description			Ref.No.	Part No.	Description			Ref.No.	Part No.	Description						
C147	1-107-317-00	MICA	33PF	5%	500V	C249	1-131-450-91	TANTALUM	1MF	20%	50V	C584	1-131-347-00	TANTALUM	1MF	20%	35V	D110	8-719-911-50	DIODE HZ5C1			
C148	1-131-450-91	TANTALUM	1MF	20%	50V	C250	1-131-450-91	TANTALUM	1MF	20%	50V	C585	1-131-347-00	TANTALUM	1MF	20%	35V	D201	8-719-200-47	DIODE 10YD4.5B			
C149	1-131-450-91	TANTALUM	1MF	20%	50V	C251	1-131-450-91	TANTALUM	1MF	20%	50V	C590	1-102-716-00	CERAMIC	12PF	5%	50V	D202	8-719-224-11	DIODE 10YD2.4A			
C150	1-131-450-91	TANTALUM	1MF	20%	50V	C253	1-107-324-00	MICA	0.0039MF	2%	100V	C601	1-130-637-	FILM	0.27MF	5%	50V	D203	8-719-300-02	DIODE SV-02			
C151	1-131-450-91	TANTALUM	1MF	20%	50V	C254	1-131-522-00	TANTALUM	10MF	20%	25V	C610	1-123-324-00	ELECT	1000MF	20%	16V	D204	8-719-200-04	DIODE 10YD1.3B			
C153	1-107-324-00	MICA	0.0039MF	2%	100V	C255	1-131-522-00	TANTALUM	10MF	20%	25V	C614	1-123-325-00	ELECT	2200MF	20%	16V	D205	8-719-910-65	DIODE HZ6B2L			
C154	1-131-522-00	TANTALUM	10MF	20%	25V	C256	1-107-310-00	MICA	220PF	5%	500V	C615	1-131-450-91	TANTALUM	1MF	20%	50V	D206	8-719-911-19	DIODE 1SS119			
C155	1-131-522-00	TANTALUM	10MF	20%	25V	C257	1-131-450-91	TANTALUM	1MF	20%	50V	C621	1-130-632-00	FILM	0.1MF	5%	50V	D207	8-719-910-65	DIODE HZ6B2L			
C156	1-107-310-00	MICA	220PF	5%	500V	C258	1-131-450-91	TANTALUM	1MF	20%	50V	C628	1-131-342-91	TANTALUM	0.15MF	10%	35V	D208	8-719-200-04	DIODE 10YD1.3B			
C157	1-131-450-91	TANTALUM	1MF	20%	50V	C259	1-130-621-00	FILM	0.012MF	5%	50V	C629	1-131-342-91	TANTALUM	0.15MF	10%	35V	D209	8-719-911-50	DIODE HZ5C1			
C158	1-131-450-91	TANTALUM	1MF	20%	50V	C262	1-131-371-71	TANTALUM	10MF	20%	16V	C631	1-131-368-71	TANTALUM	3.3MF	20%	16V	D210	8-719-911-50	DIODE HZ5C1			
C159	1-130-621-00	FILM	0.012MF	5%	50V	C301	1-131-371-71	TANTALUM	10MF	20%	16V	C633	1-131-368-71	TANTALUM	3.3MF	20%	16V	D301	8-719-911-19	DIODE 1SS119T1			
C162	1-131-371-71	TANTALUM	10MF	20%	16V	C304	1-131-371-71	TANTALUM	10MF	20%	16V	C634	1-123-685-00	ELECT	470MF	20%	16V	D302	8-719-911-19	DIODE 1SS119T1			
C202	1-107-294-00	MICA	56PF	5%	100V	C305	1-131-450-91	TANTALUM	1MF	20%	50V	C635	1-123-685-00	ELECT	470MF	20%	16V	D303	8-719-911-19	DIODE 1SS119T1			
C204	1-107-284-00	MICA	22PF	5%	100V	C306	1-131-450-91	TANTALUM	1MF	20%	50V	C636	1-123-685-00	ELECT	470MF	20%	16V	D304	8-719-911-19	DIODE 1SS119T1			
C205	1-123-830-00	ELECT	4.7MF	20%	50V	C308	1-131-450-91	TANTALUM	1MF	20%	50V	C637	1-123-685-00	ELECT	470MF	20%	16V	D305	8-719-911-19	DIODE 1SS119T1			
C210	1-107-165-00	MICA	56PF	5%	500V	C309	1-131-371-71	TANTALUM	10MF	20%	16V	C638	1-107-309-00	MICA	100PF	5%	500V	D310	8-719-910-65	DIODE HZ6B2L			
C211	1-107-309-00	MICA	100PF	5%	500V	C312	1-131-371-71	TANTALUM	10MF	20%	16V	C639	1-107-309-00	MICA	100PF	5%	500V	D501	8-719-911-19	DIODE 1SS119			
C212	1-107-322-00	MICA	22PF	5%	500V	C313	1-131-371-71	TANTALUM	10MF	20%	16V	C640	1-131-520-00	TANTALUM	22MF	20%	16V	D502	8-719-911-19	DIODE 1SS119			
C213	1-130-922-00	FILM	0.0056MF	2%	250V	C314	1-131-450-91	TANTALUM	1MF	20%	50V	C641	1-131-520-00	TANTALUM	22MF	20%	16V	D503	8-719-911-19	DIODE 1SS119			
C214	1-131-450-91	TANTALUM	1MF	20%	50V	C320	1-131-450-00	TANTALUM	1MF	20%	35V	C642	1-123-685-00	ELECT	470MF	20%	16V	D504	8-719-911-19	DIODE 1SS119			
C215	1-131-450-91	TANTALUM	1MF	20%	50V	C321	1-131-450-00	TANTALUM	1MF	20%	35V	C643	1-123-685-00	ELECT	470MF	20%	16V	D505	8-719-911-19	DIODE 1SS119			
C216	1-131-450-91	TANTALUM	1MF	20%	50V	C322	1-131-450-91	TANTALUM	1MF	20%	50V	C644	1-123-685-00	ELECT	470MF	20%	16V	D506	8-719-911-19	DIODE 1SS119			
C217	1-131-450-91	TANTALUM	1MF	20%	50V	C323	1-131-450-91	TANTALUM	1MF	20%	50V	C645	1-123-685-00	ELECT	470MF	20%	16V	D507	8-719-910-75	DIODE HZ7B2L			
C218	1-131-450-91	TANTALUM	1MF	20%	50V	C325	1-161-323-00	CERAMIC	0.001MF	10%	50V	C646	1-131-450-91	TANTALUM	1MF	20%	50V	D508	8-719-911-19	DIODE 1SS119			
C219	1-131-522-00	TANTALUM	10MF	20%	25V	C503	1-123-230-00	ELECT	2.2MF	20%	50V	C647	1-131-450-91	TANTALUM	1MF	20%	50V	D509	8-719-911-19	DIODE 1SS119			
C220	1-131-522-00	TANTALUM	10MF	20%	25V	C510	1-131-343-71	TANTALUM	0.22MF	20%	35V	C648	1-131-450-91	TANTALUM	1MF	20%	50V	D510	8-719-911-19	DIODE 1SS119			
C221	1-107-308-00	MICA	220PF	5%	100V	C511	1-123-230-00	ELECT	2.2MF	20%	50V	C649	1-131-450-91	TANTALUM	1MF	20%	50V	D511	8-719-915-43	DIODE FC54M			
C222	1-131-450-91	TANTALUM	1MF	20%	50V	C515	1-131-343-71	TANTALUM	0.22MF	20%	35V	C651	1-123-687-11	ELECT	2200MF	20%	16V	D512	8-719-911-19	DIODE 1SS119			
C223	1-131-450-91	TANTALUM	1MF	20%	50V	C519	1-131-343-71	TANTALUM	0.22MF	20%	35V	C652	1-123-687-11	ELECT	2200MF	20%	16V	D513	8-719-911-19	DIODE 1SS119			
C224	1-131-450-91	TANTALUM	1MF	20%	50V	C522	1-131-450-91	TANTALUM	1MF	20%	50V	C703	1-131-377-00	TANTALUM	10MF	20%	10V	D514	8-719-911-19	DIODE 1SS119			
C225	1-104-230-00	POLYSTYRENE	0.0015MF	5%	500V	C523	1-131-450-91	TANTALUM	1MF	20%	50V	C704	1-123-298-00	ELECT	470MF	20%	6.3V	D515	8-719-910-96	DIODE HZ9B3L			
C226	1-131-450-91	TANTALUM	1MF	20%	50V	C524	1-131-450-91	TANTALUM	1MF	20%	50V	C705	1-131-347-00	TANTALUM	1MF	20%	35V	D601	8-719-911-50	DIODE HZ5C1			
C227	1-131-45																						

ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS		
Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
D614	8-719-815-55	DIODE 1S1555	IC104	8-758-990-00	IC CX-899	IC526	8-759-901-63	IC SN74LS163A	Q101	8-765-660-10	TRANSISTOR 2SK245
D615	8-719-815-55	DIODE 1S1555	IC105	8-759-993-53	IC LF353H	IC527	8-759-220-74	IC TC40H074P	Q102	8-765-640-10	TRANSISTOR 2SK244
D616	8-719-911-19	DIODE 1SS119	IC106	8-759-340-53	IC MSM4053RS	IC528	8-759-240-29	IC TC4029BP	Q103	8-729-113-82	TRANSISTOR 2SA1138
D617	8-719-911-19	DIODE 1SS119	IC107	8-759-907-01	IC TL071CP	IC529	8-759-901-57	IC SN74LS157N	Q104	8-729-113-82	TRANSISTOR 2SA1138
D618	8-719-902-97	DIODE EQA01-06R2	IC108	8-759-903-56	IC LF356H	IC530	8-759-245-28	IC TC4528BP	Q105	8-729-167-62	TRANSISTOR 2SC2676
D619	8-719-902-97	DIODE EQA01-06R2	IC109	8-759-145-58	IC UPC4558C	IC531	8-759-990-72	IC TL072CP	Q106	8-729-167-62	TRANSISTOR 2SC2676
D621	8-719-910-64	DIODE HZ6B1L	IC201	8-759-905-42	IC NE5534P	IC532	8-759-200-05	IC TC40H008P	Q107	8-729-907-11	TRANSISTOR 2SC2071
D623	8-719-911-19	DIODE 1SS119	IC202	8-759-993-53	IC LF353H	IC533	8-759-904-14	IC SN74ALS04N	Q108	8-729-993-92	TRANSISTOR 2SA939
D624	8-719-200-06	DIODE 10YD0.6	IC203	8-759-993-53	IC LF353H	IC534	8-759-200-08	IC TC40H367P	Q109	8-765-422-00	TRANSISTOR 2SK152-2
D625	8-719-200-06	DIODE 10YD0.6	IC204	8-758-990-00	IC CX-899	IC535	8-759-900-04	IC SN74LS04N	Q110	8-765-422-00	TRANSISTOR 2SK152-2
D626	8-719-911-19	DIODE 1SS119	IC205	8-759-993-53	IC LF353H	IC536	8-759-178-15	IC UPC78L15	Q111	8-729-663-48	TRANSISTOR 2SC1364-8
D627	8-719-911-19	DIODE 1SS119	IC206	8-759-940-53	IC MSM4053RS	IC537	8-759-220-02	IC TC40H002P	Q201	8-765-660-10	TRANSISTOR 2SK245
D628	8-719-911-19	DIODE 1SS119	IC207	8-759-907-01	IC TL071CP	IC538	8-759-200-05	IC TC40H008P	Q202	8-765-640-10	TRANSISTOR 2SK244
D629	8-719-911-19	DIODE 1SS119	IC208	8-759-903-56	IC LF356H	IC539	8-759-200-05	IC TC40H008P	Q203	8-729-113-82	TRANSISTOR 2SA1138
D630	8-719-934-34	DIODE AA3432S	IC209	8-759-145-58	IC UPC4558C	IC540	8-759-900-27	IC SN74LS27N	Q204	8-729-113-82	TRANSISTOR 2SA1138
D631	8-719-911-19	DIODE 1SS119	IC301	8-759-200-05	IC TC40H008P	IC541	8-759-974-06	IC SN7406N	Q205	8-729-167-62	TRANSISTOR 2SC2676
D634	8-719-224-11	DIODE 10YD2.4A	IC302	8-759-220-74	IC TC40H074P	IC550	8-759-905-69	IC NE564N	Q206	8-729-167-62	TRANSISTOR 2SC2676
D635	8-719-224-11	DIODE 10YD2.4A	IC303	8-759-979-05	IC UA79M05CKC	IC551	8-759-904-98	IC 74LS169PC	Q207	8-729-907-11	TRANSISTOR 2SC2071
D640	8-719-200-02	DIODE 10E-2	IC304	8-758-900-00	IC CX-890	IC552	8-759-904-98	IC 74LS169PC	Q208	8-729-993-92	TRANSISTOR 2SA939
D641	8-719-200-02	DIODE 10E-2	IC306	8-759-745-56	IC NJM4556D	IC553	8-759-904-98	IC 74LS169PC	Q209	8-765-422-00	TRANSISTOR 2SK152-2
D642	8-719-911-19	DIODE 1SS119	IC501	8-759-903-55	IC LF357H	IC554	8-759-904-98	IC 74LS169PC	Q210	8-765-422-00	TRANSISTOR 2SK152-2
D643	8-719-911-19	DIODE 1SS119	IC502	8-759-903-55	IC LF357H	IC555	8-759-900-69	IC SN74ALS74N	Q211	8-729-663-48	TRANSISTOR 2SC1364-8
D644	8-719-911-19	DIODE 1SS119	IC503	8-759-993-53	IC LF353H	IC601	8-759-240-93	IC TC4093BP	Q501	8-769-132-00	TRANSISTOR 2SK121-2
D645	8-719-911-19	DIODE 1SS119	IC504	8-759-103-19	IC UPC319C	IC602	8-759-145-84	IC UPD4584BC	Q502	8-729-663-47	TRANSISTOR 2SC1364
D646	8-719-911-19	DIODE 1SS119	IC505	8-759-979-14	IC CX-7914	IC603	8-759-240-50	IC TC4050BP	Q503	8-769-132-00	TRANSISTOR 2SK121-2
D647	8-719-911-19	DIODE 1SS119	IC506	8-759-245-05	IC TM4505P	IC605	8-759-240-01	IC TC4001BP	Q504	8-729-612-77	TRANSISTOR 2SA1027R
D648	8-719-911-19	DIODE 1SS119	IC507	8-759-901-28	IC MSM512812R	IC606	8-759-240-01	IC TC4001BP	Q505	8-729-663-47	TRANSISTOR 2SC1364
D649	8-719-981-00	DIODE ERC81-004	IC508	8-759-178-50	IC UPD785C	IC607	8-759-240-11	IC TC4011BP	Q506	8-729-663-47	TRANSISTOR 2SC1364
D650	8-719-911-19	DIODE 1SS119	IC509	8-759-901-28	IC MSM512812R	IC609	8-759-145-57	IC UPC4557C	Q507	8-729-612-77	TRANSISTOR 2SA1027R
D651	8-719-911-19	DIODE 1SS119	IC510	8-759-900-69	IC SN74ALS74N	IC610	8-759-240-66	IC TC4066BP	Q508	8-729-663-47	TRANSISTOR 2SC1364
D652	8-719-910-64	DIODE HZ6B1L	IC511	8-759-240-24	IC TC4024BP	IC701	8-759-120-30	IC UPD652C030	Q509	8-729-663-47	TRANSISTOR 2SC1364
D653	8-719-911-19	DIODE 1SS119	IC512	8-759-900-67	IC SN74ALS02N	IC702	8-759-940-50	IC MSM4050RS	Q510	8-729-663-47	TRANSISTOR 2SC1364
D654	8-719-911-19	DIODE 1SS119	IC513	8-759-900-67	IC SN74ALS02N	IC703	8-759-729-03	IC NJM2903D	Q511	8-729-663-47	TRANSISTOR 2SC1364
D655	8-719-911-19	DIODE 1SS119	IC514	8-759-220-32	IC TC40H032P	J101	1-507-666-00	JACK, LARGE TYPE	Q513	8-729-663-47	TRANSISTOR 2SC1364
D701	8-719-901-33	DIODE 1SS133	IC515	8-759-245-28	IC TC4528BP	J201	1-507-666-00	JACK, LARGE TYPE	Q514	8-729-612-77	TRANSISTOR 2SA1027R
D702	8-719-901-33	DIODE 1SS133	IC516	8-759-900-69	IC SN74ALS74N	J301	1-507-649-00	JACK	Q515	8-729-663-47	TRANSISTOR 2SC1364
D703	8-719-901-33	DIODE 1SS133	IC517	8-759-221-64	IC TC40H164P	J601	1-561-794-00	SOCKET, CONNECTOR 5P	Q516	8-729-663-47	TRANSISTOR 2SC1364
D704	8-719-910-61	DIODE HZ6A1L	IC518	8-759-221-64	IC TC40H164P	L501	1-407-169-XX	MICRO INDUCTOR 100UH	Q517	8-729-663-47	TRANSISTOR 2SC1364
D705	8-719-901-33	DIODE 1SS133	IC519	8-759-220-74	IC TC40H074P	L502	1-407-169-XX	MICRO INDUCTOR 100UH	Q518	8-729-671-14	TRANSISTOR 2SC710-14
D706	8-719-901-33	DIODE 1SS133	IC520	8-759-220-74	IC TC40H074P	L503	1-426-090-00	TRANSFORMER, RF	Q519	8-729-671-14	TRANSISTOR 2SC710-14
D707	1-806-336-00	DIODE SB102 (LED)	IC521	8-759-220-74	IC TC40H074P	L504	1-407-163-XX	MICRO INDUCTOR 33UH	Q520	8-729-671-14	TRANSISTOR 2SC710-14
IC101	8-759-905-42	IC NE5534P	IC522	8-759-901-63	IC SN74LS163A	L505	1-459-379-00	COIL (WITH CORE)	Q521	8-729-663-47	TRANSISTOR 2SC1364
IC102	8-759-993-53	IC LF353H	IC523	8-759-901-64	IC SN74LS164N	L506	1-407-163-XX	MICRO INDUCTOR 33UH	Q522	8-729-224-62	TRANSISTOR 2SK246-GR
IC103	8-759-993-53	IC LF353H	IC524	8-759-200-09	IC TC40H393P	LPF101	1-464-170-00	FILTER, LOW PASS	Q523	8-729-663-47	TRANSISTOR 2SC1364
			IC525	8-759-241-63	IC TC40163BP	LPF102	1-				

ELECTRICAL PARTS

Ref. No.	Part No.	Description
Q525	8-729-200-30	TRANSISTOR 2SK107-3
Q526	8-729-663-47	TRANSISTOR 2SC1364
Q527	8-729-671-14	TRANSISTOR 2SC710-14

Q528	8-729-671-14	TRANSISTOR 2SC710-14
Q529	8-729-671-14	TRANSISTOR 2SC710-14
Q601	8-729-663-48	TRANSISTOR 2SC1364-8

Q602	8-729-663-48	TRANSISTOR 2SC1364-8
Q603	8-729-177-43	TRANSISTOR 2SD774
Q604	8-729-663-48	TRANSISTOR 2SC1364-8

Q605	8-729-177-43	TRANSISTOR 2SD774
Q606	8-729-663-48	TRANSISTOR 2SC1364-8
Q607	8-729-663-48	TRANSISTOR 2SC1364-8

Q608	8-729-663-48	TRANSISTOR 2SC1364-8
Q609	8-729-612-77	TRANSISTOR 2SA1027R
Q610	8-729-663-48	TRANSISTOR 2SC1364-8

Q611	8-729-663-48	TRANSISTOR 2SC1364-8
Q612	8-729-663-48	TRANSISTOR 2SC1364-8
Q613	8-729-663-48	TRANSISTOR 2SC1364-8

Q615	8-729-663-48	TRANSISTOR 2SC1364-8
Q616	8-729-663-48	TRANSISTOR 2SC1364-8
Q617	8-729-612-77	TRANSISTOR 2SA1027R

Q619	8-729-612-77	TRANSISTOR 2SA1027R
Q621	8-729-612-77	TRANSISTOR 2SA1027R
Q622	8-729-612-77	TRANSISTOR 2SA1027R

Q623	8-729-663-48	TRANSISTOR 2SC1364-8
Q624	8-729-663-48	TRANSISTOR 2SC1364-8
Q625	8-729-663-48	TRANSISTOR 2SC1364-8

Q626	8-729-663-48	TRANSISTOR 2SC1364-8
Q627	8-729-612-77	TRANSISTOR 2SA1027R
Q628	8-729-167-62	TRANSISTOR 2SC2676

Q629	8-729-113-82	TRANSISTOR 2SA1138
Q630	8-729-107-53	TRANSISTOR 2SC2275A
Q631	8-729-190-53	TRANSISTOR 2SA985A

Q632	8-729-167-62	TRANSISTOR 2SC2676
Q633	8-729-113-82	TRANSISTOR 2SA1138
Q634	8-729-167-62	TRANSISTOR 2SC2676

Q635	8-729-113-82	TRANSISTOR 2SA1138
Q636	8-729-113-82	TRANSISTOR 2SA1138
Q637	8-729-167-62	TRANSISTOR 2SC2676

Q638	8-729-113-82	TRANSISTOR 2SA1138
Q639	8-729-167-62	TRANSISTOR 2SC2676
Q640	8-729-663-48	TRANSISTOR 2SC1364-8

Q641	8-729-663-48	TRANSISTOR 2SC1364-8
Q642	8-729-663-48	TRANSISTOR 2SC1364-8
Q643	8-729-663-48	TRANSISTOR 2SC1364-8

ELECTRICAL PARTS

Ref. No.	Part No.	Description
Q701	8-729-902-11	TRANSISTOR 2SC2021
Q702	8-729-902-11	TRANSISTOR 2SC2021
Q703	8-729-902-11	TRANSISTOR 2SC2021

Q704	8-729-902-11	TRANSISTOR 2SC2021
Q705	8-729-902-11	TRANSISTOR 2SC2021
Q706	8-729-902-11	TRANSISTOR 2SC2021

Q707	8-729-902-11	TRANSISTOR 2SC2021
Q708	8-729-902-11	TRANSISTOR 2SC2021
Q709	8-729-902-11	TRANSISTOR 2SC2021

Q710	8-729-902-11	TRANSISTOR 2SC2021
Q711	8-729-902-11	TRANSISTOR 2SC2021
Q712	8-729-902-11	TRANSISTOR 2SC2021

Q713	8-729-902-11	TRANSISTOR 2SC2021
Q714	8-729-902-11	TRANSISTOR 2SC2021
Q715	8-729-902-11	TRANSISTOR 2SC2021

Q716	8-729-902-11	TRANSISTOR 2SC2021-S
R102	1-214-092-00	METAL
R103	1-214-156-00	METAL

R104	1-214-143-00	METAL
R105	1-214-143-00	METAL
R106	1-214-124-00	METAL

R107	1-214-096-00	METAL</td

ELECTRICAL PARTS

Ref. No.	Part No.	Description	3.9K	1%	1/4W
R247	1-214-146-00	METAL	3.9K	1%	1/4W
R248	1-214-172-00	METAL	47K	1%	1/4W
R249	1-214-180-00	METAL	100K	1%	1/4W
R253	1-214-893-00	METAL	16K	1%	1/2W
R254	1-214-164-00	METAL	22K	1%	1/4W
R255	1-214-142-00	METAL	2.7K	1%	1/4W
R256	1-214-164-00	METAL	22K	1%	1/4W
R257	1-214-892-00	METAL	15K	1%	1/2W
R259	1-214-880-61	METAL	4.7K	1%	1/2W
R260	1-214-890-61	METAL	12K	1%	1/2W
R261	1-214-862-00	METAL	820	1%	1/2W
R262	1-214-956-00	METAL	470K	1%	1/4W
R263	1-214-180-00	METAL	100K	1%	1/4W
R264	1-214-852-61	METAL	330	1%	1/2W
R265	1-214-180-00	METAL	100K	1%	1/4W
R266	1-214-848-00	METAL	220	1%	1/2W
R267	1-214-168-00	METAL	33K	1%	1/4W
R268	1-214-158-00	METAL	12K	1%	1/4W
R269	1-214-151-00	METAL	6.2K	1%	1/4W
R270	1-214-143-00	METAL	3K	1%	1/4W
R271	1-214-136-00	METAL	1.5K	1%	1/4W
R272	1-214-136-00	METAL	1.5K	1%	1/4W
R273	1-214-180-00	METAL	100K	1%	1/4W
R274	1-214-173-00	METAL	51K	1%	1/4W
R275	1-214-150-00	METAL	5.6K	1%	1/4W
R276	1-214-112-00	METAL	150	1%	1/4W
R277	1-214-172-00	METAL	47K	1%	1/4W
R278	1-214-168-00	METAL	33K	1%	1/4W
R284	1-214-126-00	METAL	560	1%	1/4W
R285	1-214-126-00	METAL	560	1%	1/4W
R286	1-214-150-00	METAL	5.6K	1%	1/4W
R312	1-214-084-00	METAL	10	1%	1/4W
R313	1-214-108-00	METAL	100	1%	1/4W
R314	1-214-139-00	METAL	2K	1%	1/4W
R315	1-214-172-00	METAL	47K	1%	1/4W
R316	1-212-857-00 (Canadian) ... RES, FUSE	10 5% 1/4W F	10	5%	1/4W F
R316	1-214-084-00 (US, AEP, UK) ... METAL	10 1% 1/4W	10	1%	1/4W
R317	1-212-857-00 (Canadian) ... RES, FUSE	10 5% 1/4W F	10	5%	1/4W F
R317	1-214-084-00 (US, AEP, UK) ... METAL	10 1% 1/4W	10	1%	1/4W

ELECTRICAL PARTS

Ref. No.	Part No.	Description	1K	1%	1/4W
R663	1-214-132-00	METAL	1K	1%	1/4W
R664	1-214-132-00	METAL	1K	1%	1/4W
R686	1-214-136-00	METAL	1.5K	1%	1/4W
R687	1-214-136-00	METAL	1.5K	1%	1/4W
R688	1-214-132-00	METAL	1K	1%	1/4W
R689	1-214-132-00	METAL	1K	1%	1/4W
R692	1-214-158-00	METAL	12K	1%	1/4W
R693	1-214-158-00	METAL	12K	1%	1/4W
R694	1-214-888-00	METAL	10K	1%	1/2W
R695	1-214-888-00	METAL	10K	1%	1/2W
R696	1-214-158-00	METAL	12K	1%	1/4W
R697	1-214-158-00	METAL	12K	1%	1/4W
R698	1-214-874-00	METAL	2.7K	1%	1/2W
R699	1-214-874-00	METAL	2.7K	1%	1/2W
R732	1-214-760-00	METAL	20K	1%	1/4W
R733	1-214-760-00	METAL	20K	1%	1/4W
R734	1-214-760-00	METAL	20K	1%	1/4W
R735	1-214-760-00	METAL	20K	1%	1/4W
R736	1-214-760-00	METAL	20K	1%	1/4W
R737	1-214-753-00	METAL	10K	1%	1/4W
R738	1-214-753-00	METAL	10K	1%	1/4W
R739	1-214-753-00	METAL	10K	1%	1/4W
R740	1-214-753-00	METAL	10K	1%	1/4W
R741	1-214-753-00	METAL	10K	1%	1/4W
R742	1-214-746-00	METAL	5.1K	1%	1/4W
R743	1-214-760-00	METAL	20K	1%	1/4W
R744	1-231-569-00	COMPOSITION CIRCUIT BLOCK			
R745	1-231-569-00	COMPOSITION CIRCUIT BLOCK			
R746	1-231-569-00	COMPOSITION CIRCUIT BLOCK			
R747	1-231-569-00	COMPOSITION CIRCUIT BLOCK			
R801	1-214-874-00	METAL	2.7K	1%	1/2W
R802	1-214-874-00	METAL	2.7K	1%	1/2W
R812	1-214-862-00	METAL	820	1%	1/2W
R813	1-214-862-00	METAL	820	1%	1/2W
R830	1-214-852-61	METAL	330	1%	1/2W
R831	1-214-852-61	METAL	330	1%	1/2W
R909	1-214-170-00	METAL	39K	1%	1/4W
R913	1-214-173-00	METAL	51K	1%	1/4W
R914	1-214-173-00	METAL	51K	1%	1/4W
R915	1-214-140-00	METAL	2.2K	1%	1/4W
R916	1-214-174-00	METAL	56K	1%	1/4W
R917	1-214-177-00	METAL	75K	1%	1/4W
R918	1-214-163-00	METAL	20K	1%	1/4W
R925	1-214-134-00	METAL	1.2K	1%	1/4W
R926	1-214-124-00	METAL	470	1%	1/4W
R950	1-214-112-00	METAL	150	1%	1/4W

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (△-LLL-LLL-XX or △-AAA-AAA-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μ F, PF: μ F.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

• F : nonflammable

COILS

• MMH : mH, UH : μ H

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

SEMICONDUCTORS

In each case, U : μ , for example: UA... : μ A..., UPA... : μ PA..., UPC... : μ PC, UPD... : μ PD...

ELECTRICAL PARTS

Ref. No.	Part No.	Description
RV101	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RV102	1-228-508-12	RES, VAR, CARBON 20K
RV103	1-224-252-31	RES, ADJ, METAL GLAZE 10K
RV104	1-224-550-31	RES, ADJ, METAL GLAZE 220
RV105	1-224-248-31	RES, ADJ, METAL GLAZE 470
RV106	1-224-253-31	RES, ADJ, METAL GLAZE 22K
RV201	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RV202	1-228-508-12	RES, VAR, CARBON 20K
RV203	1-224-252-31	RES, ADJ, METAL GLAZE 10K
RV204	1-224-550-31	RES, ADJ, METAL GLAZE 220
RV205	1-224-248-31	RES, ADJ, METAL GLAZE 470
RV206	1-224-253-31	RES, ADJ, METAL GLAZE 22K
RV601	1-224-493-00	RES, ADJ, METAL FILM 10K
RV602	1-224-490-00	RES, ADJ, METAL FILM 4.7K
RV603	1-224-490-00	RES, ADJ, METAL FILM 4.7K
RV604	1-224-490-00	RES, ADJ, METAL FILM 4.7K
RY301	1-515-445-00	RELAY
RY302	1-515-448-00	RELAY
RY303	1-515-448-00	RELAY
RY304	1-515-448-00	RELAY
RY601	1-515-446-00	RELAY
RY602	1-515-446-00	RELAY
RY603	1-515-460-00	RELAY
S301	1-553-254-00	SWITCH, ROTARY
S601	1-553-967-00	SWITCH, TOGGLE
S602	1-553-967-00	SWITCH, TOGGLE
S603	1-553-967-00	SWITCH, TOGGLE
S604	1-553-856-00	SWITCH, KEY BOARD
S605	1-553-856-00	SWITCH, KEY BOARD
S606	1-553-856-00	SWITCH, KEY BOARD
S607	1-553-856-00	SWITCH, KEY BOARD
S608	1-553-856-00	SWITCH, KEY BOARD
S609	1-553-856-00	SWITCH, KEY BOARD
S610	1-552-972-21	SWITCH, SLIDE
T201	1-426-106-00	TRANSFORMER, RF
T301	1-426-106-00	TRANSFORMER, RF
X201	1-527-952-00	VIBRATOR, CRYSTAL
X301	1-527-948-12	VIBRATOR, CRYSTAL
X501	1-527-583-00	(NTSC).....OSCILLATOR, CRYSTAL
X501	1-527-788-00	(PAL/SECAM)....OSCILLATOR, CRYSTAL
X502	1-527-949-00	VIBRATOR, CRYSTAL
X503	1-527-871-00	OSCILLATOR, LITHIUM TANTALATE
X701	1-527-532-00	OSCILLATOR, CERAMIC

NOTE:

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- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μ F, PF: $\mu\mu$ F.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μ H

SEMICONDUCTORS

- In each case, U : μ , for example:
UA... : μ A..., UPA... : μ PA..., UPC... : μ PC,
UPD... : μ PD...

ELECTROLYTIC CAPACITORS

CAP. (μF)	RATING					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	—	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	—
3300	1-121-661-00	1-123-075-00	1-123-071-00	—	—	—

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	—	—	—	—
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	—	1-123-028-00
3.3	1-121-995-00	—	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	—	—
47	1-123-251-00	1-121-919-00	—	—
100	1-123-084-00	—	—	—

CERAMIC CAPACITORS

CAP. (pF)	RATING					
	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)
PART No.	PART No.		PART No.		PART No.	
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00	
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00	
16	1-102-952-00	110	1-102-815-00			
18	1-102-953-00	120	1-102-816-00			
20	1-102-958-00	130	1-101-081-00			

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

CAP. (pF)	RATING					
	25 VOLT.	50 VOLT.	CAP. (pF)	25 VOLT.	50 VOLT.	CAP. (pF)
PART No.	PART No.	PART No.		PART No.	PART No.	
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00	
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00	
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00	
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00	
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00	
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00	
0.0033	→	1-161-045-00	0.056	→	1-161-060-00	
0.0039	→	1-161-046-00	0.068	→	1-161-061-00	
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00	
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00	
0.0068	→	1-161-049-00				
0.0082	1-161-012-00	1-161-050-00				
0.01	1-161-013-00	1-161-051-00				
0.012	→	1-161-052-00				
0.015	1-161-015-00	1-161-053-00				

PCM-F1

MYLAR CAPACITORS

CAP. (μF)	RATING											
	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00	
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00	
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00	
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00	
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00	
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—	
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—	
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—	
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—	
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00					
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00					
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00					



TANTALUM CAPACITORS

CAP. (μF)	RATING							→ : Use the high voltage rated one.
	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.	
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00	
0.015					→	→	1-131-397-00	
0.022					→	→	1-131-398-00	
0.033					→	→	1-131-399-00	
0.047					→	→	1-131-400-00	
0.068					→	→	1-131-401-00	
0.1					→	→	1-131-402-00	
0.15					→	→	1-131-403-00	
0.22					→	→	1-131-404-00	
0.33					→	1-131-409-00	1-131-405-00	
0.47	—	—	—	—	1-131-412-00	→	1-131-406-00	
0.68	—	—	—	1-131-415-00	→	1-131-410-00	1-131-407-00	
1.0	—	—	1-131-418-00	—	1-131-413-00	→	1-131-408-00	
1.5	—	1-131-421-00	—	1-131-416-00	→	1-131-411-00	1-131-348-00	
2.2	1-131-424-00	—	1-131-419-00	—	1-131-414-00	—	1-131-355-00	1-131-349-00
3.3	—	1-131-422-00	—	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00	
4.7	1-131-425-00	—	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00	
6.8	—	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00	
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00	
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	—	
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00			
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00				
47	1-131-393-00	1-131-387-00	1-131-381-00	—				
68	1-131-394-00	1-131-388-00	—	—				
100	1-131-395-00	—	—	—				



TANTALUM CAPACITORS

CAP. (μF)	RATING						
	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033							1-131-273-00
0.047							1-131-274-00
0.068							1-131-275-00
0.1							1-131-276-00
0.15							1-131-277-00
0.22				—	—	1-131-262-00	1-131-278-00
0.33				—	—	1-131-263-00	1-131-279-00
0.47			1-131-169-00	—	—	1-131-264-00	1-131-280-00
0.68			—	1-131-258-00	—	1-131-265-00	1-131-281-00
1.0			1-131-254-00	—	—	1-131-266-00	1-131-282-00
1.5		1-131-250-00	—	—	—	1-131-267-00	1-131-283-00
2.2		—	1-131-255-00	1-131-259-00	—	1-131-268-00	1-131-284-00
3.3		—	1-131-171-00	—	—	1-131-269-00	—
4.7	1-131-251-00	—	—	1-131-270-00	—	1-131-271-00	—
6.8	—	—	—	1-131-260-00	—	—	—
10	—	—	1-131-256-00	—	—	1-131-272-00	—
15	—	1-131-252-00	—	1-131-261-00	—		
22	—	—	1-131-257-00	—			
33	1-131-176-00	1-131-253-00	1-131-257-00	—			
47	1-131-288-00	1-131-174-00	1-131-173-00	—			
100	1-131-177-00						

1/4 WATT CARBON RESISTORS

Ω	Part No.												
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

1/8 WATT CARBON RESISTOR

Ω	Part No.												
2.0	—	13	1-246-821-00	91	1-246-831-00	620	1-246-841-00	4.3k	1-246-851-00	30k	1-246-861-00	200k	1-246-871-00
2.2	1-246-751-00	15	1-246-761-00	100	1-246-771-00	680	1-246-781-00	4.7k	1-246-791-00	33k	1-246-801-00	220k	1-246-811-00
2.4	—	16	1-246-822-00	110	1-246-832-00	750	1-246-842-00	5.1k	1-246-852-00	36k	1-246-862-00	240k	1-247-054-00
2.7	1-246-752-00	18	1-246-762-00	120	1-246-772-00	820	1-246-782-00	5.6k	1-246-792-00	39k	1-246-802-00	270k	1-247-046-00
3.0	—	20	1-246-823-00	130	1-246-833-33	910	1-246-843-00	6.2k	1-246-853-00	43k	1-246-863-00	300k	1-247-055-00
3.3	1-246-753-00	22	1-246-763-00	150	1-246-773-00	1.0k	1-246-783-00	6.8k	1-246-793-00	47k	1-246-803-00	330k	1-247-047-00
3.6	—	24	1-246-824-00	160	1-246-834-00	1.1k	1-246-844-00	7.5k	1-246-854-00	51k	1-246-864-00	360k	1-247-056-00
3.9	1-246-754-00	27	1-246-764-00	180	1-246-774-00	1.2k	1-246-784-00	8.2k	1-246-794-00	56k	1-246-804-00	390k	1-247-048-00
4.3	—	30	1-246-825-00	200	1-246-835-00	1.3k	1-246-845-00	9.1k	1-246-855-00	62k	1-246-865-00	430k	1-247-057-00
4.7	1-246-755-00	33	1-246-765-00	220	1-246-775-00	1.5k	1-246-785-00	10k	1-246-795-00	68k	1-246-805-00	470k	1-247-049-00
5.1	—	36	1-246-826-00	240	1-246-836-00	1.6k	1-246-846-00	11k	1-246-856-00	75k	1-246-866-00	510k	1-247-058-00
5.6	1-246-756-00	39	1-246-766-00	270	1-246-776-00	1.8k	1-246-786-00	12k	1-246-796-00	82k	1-246-806-00	560k	1-247-050-00
6.2	—	43	1-246-827-00	300	1-246-837-00	2.0k	1-246-847-00	13k	1-246-857-00	91k	1-246-867-00	620k	1-247-059-00
6.8	1-246-757-00	47	1-246-767-00	330	1-246-777-00	2.2k	1-246-787-00	15k	1-246-797-00	100k	1-246-807-00	680k	1-247-051-00
7.5	1-246-818-00	51	1-246-828-00	360	1-246-838-00	2.4k	1-246-848-00	16k	1-246-858-00	110k	1-246-868-00	750k	1-247-060-00
8.2	1-246-758-00	56	1-246-768-00	390	1-246-778-00	2.7k	1-246-788-00	18k	1-246-798-00	120k	1-246-808-00	820k	1-247-052-00
9.1	1-246-819-00	62	1-246-829-00	430	1-246-839-00	3.0k	1-246-849-00	20k	1-246-859-00	130k	1-246-869-00	910k	1-247-061-00
10	1-246-759-00	68	1-246-769-00	470	1-246-779-00	3.3k	1-246-789-00	22k	1-246-799-00	150k	1-246-809-00	1M	1-247-053-00
11	1-246-820-00	75	1-246-830-00	510	1-246-840-00	3.6k	1-246-850-00	24k	1-246-860-00	160k	1-246-870-00		
12	1-246-760-00	82	1-246-770-00	560	1-246-780-00	3.9k	1-246-790-00	27k	1-246-800-00	180k	1-246-810-00		